

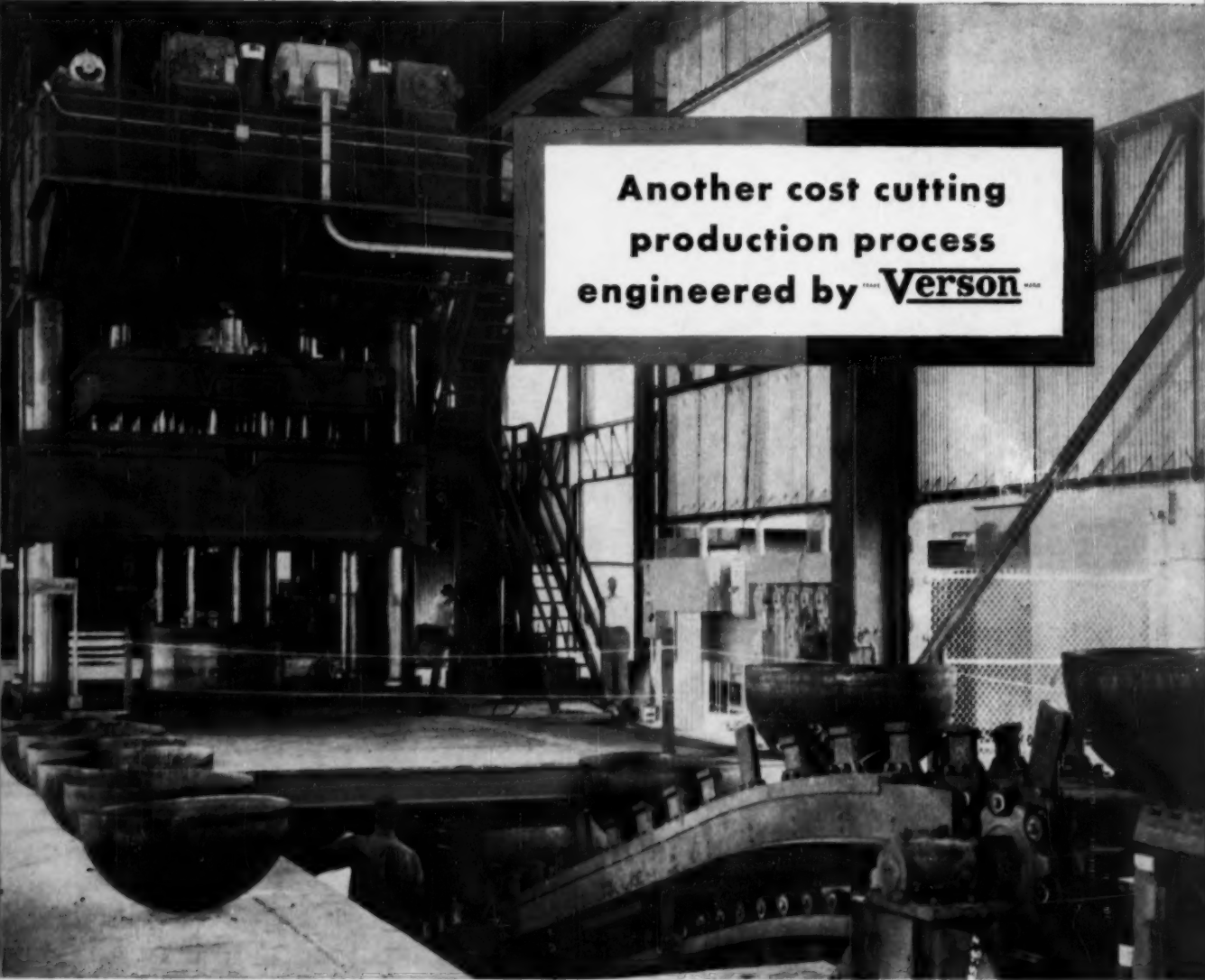
# *The* **Iron Age**

*A Chilton Publication*

What can  
you do  
about tight  
steel supply?

See page 51

THE NATIONAL METALWORKING WEEKLY • SEPTEMBER 1, 1955



Another cost cutting  
production process  
engineered by **Verson**

## *Hot and Cold forming* large diameter tank heads

In a unique process developed by Verson, this 3000 ton double platen double action hydraulic press forms heads for pressure vessels in sizes from 40 inches to 10 feet in diameter in a single stroke. Plate is fed into the

press automatically and the completed head pushed through a bed opening to an elevator and transferred to a conveyor. Another production process engineered by Verson to slash manufacturing costs.



**VERSON ALLSTEEL PRESS CO.**  
CHICAGO AND DALLAS

**BENVENUTO CELLINI  
OF FLORENCE 1500-1571**

*Our knowledge of Cellini comes chiefly from his remarkable autobiography. No less masterful than his skill as an artist and craftsman in gold was his way with 16th century Italian beauties. Among the exquisite masterpieces of his art that survive in museums are jewel settings, candlesticks, caskets and a unique saltcellar he fabricated for Francis I.*



*Crafts and craftsmen through the ages*

NUMBER TWO OF A SERIES

*Enlargements of illustrations available upon request.*

Basic Refractories not only furnishes its customers with the finest refractories available, but also employs skilled craftsmen — men with practical steelmaking experience — to insure that the use of these products gives full value.

**BASIC REFRACTORIES INCORPORATED CLEVELAND 15 OHIO**

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**GRANULAR BASIC**



**REFRACTORIES**





For strength, economy and versatility, there's nothing to compare with steel wire. These sparkling bird cages will soon be homes for contented parakeets, canaries and other feathered pets. Advance Specialty Co., Inc., makes a wide range of formed wire products.

## Steel Wire for the Birds

Making bird cages and other formed wire products calls for many different kinds of steel wire. At the Advance Specialty Company, Inc., Lansdowne, Pa., you can see a wide variety of wire forms on the production lines: bird cages (as shown above), fan guards, refrigerator shelves, oven and dishwasher racks, bread baskets, toy items, lamp guards, display racks, etc.

Turned out by the thousands at the Advance Specialty plant, each formed wire product has its specific requirements as to the type of wire. Some products are made from our bethanized wire, which has a tight,

uniform coating of pure, sparkling zinc applied by our electrolytic process. Other products, made from bright wire, are welded and formed before being electro-plated. In supplying wire for these applications, our mills pay careful attention to such important details as temper, strength, uniform gage and surface finish.

Bethlehem makes just about every kind of steel wire. Some are general-purpose grades. Others are tailored to meet the requirements of such products as cold-headed screws, upholstery springs, bicycle spokes, lock washers, brush handles, mechanical springs, and armor wire for cables.

The steel wire that's best for your product is likely to be a grade and quality we're producing right now. You say the word, and we'll be glad to have a Bethlehem man give you prices, delivery and other details. Just put in a phone call to the nearest Bethlehem sales office or write to us at Bethlehem, Pa.

**BETHLEHEM STEEL COMPANY  
BETHLEHEM, PA.**

*On the Pacific Coast Bethlehem products are sold by  
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Distributor: Bethlehem Steel Export Corporation.*

# BETHLEHEM STEEL



Starred items are digested at the right

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THE IRON AGE, published every Thursday, with an additional issue in June, by CHILTON CO. (INC.), Chestnut & 59th Sts., Philadelphia 39, Pa. Entered as second class matter, Nov. 8, 1938, at the Post Office at Philadelphia under the act of March 3, 1879. Price to the metalworking industries only, or to people actively engaged therein, \$5 for 1 year, \$5 for 3 years in the United States, its territories and Canada. All others \$15 for 1 year; other Western Hemisphere countries, \$15; other Foreign Countries, \$25 per year. Single copies, 50¢. Annual Review Issue, \$1.00. Cable: "Ironage," N. Y.

Address mail to 100 E. 42 St., N. Y. 17, N. Y.

### NEWS DEVELOPMENTS

#### STEEL USERS FIGHT EBBING INVENTORIES — P. 51

There is no inventory buildup of steel anywhere in metalworking. The reverse is true. Purchasers are hard-pressed to avoid costly work stoppages. Little relief is in sight until next year. Buyers are using extreme methods to obtain their share of steel. Consumers face further cutbacks from mills, dropping of another month on some products. Flood repair, grain bin programs, more pressure from auto companies lie ahead for consumers.

#### TITANIUM SUFFERS GROWING PAINS — P. 54

The Air Force still buys 95 pct of all the titanium produced but the indications are that this situation will not continue. Advanced techniques of using alloyed titanium widens the scope of civilian potential. But there is still quite a gap between production and fabrication knowledge and procedures.

#### STEEL ROCK MINE FULFILLS PREDICTION — P. 55

Cyrus Eaton's Ontario project reaches goal of 2.2 million tons of iron ore this year. Quota will be more than doubled by 1959. Underground mining works out in near-Arctic location in all-year operation. Switching cars is a delicate operation on railroad docks to mix ore to specification. Project comes up to hopes envisioned 50 years ago when ore was found.

#### IRON AGE REVISES PIPE PRICING METHODS — P. 57

Due to technological improvements in manufacture of cast iron pipe, former method of cast iron pipe price reporting will be replaced with an index developed by U. S. Pipe & Foundry Co. Index takes into account increasing percentage of pipe manufactured by the centrifugally cast method.

#### COMMERCIAL JETS BOOM AIRCRAFT INDUSTRY—P. 77

West Coast aircraft builders expect a \$1.5 billion backlog of orders when new business is placed. Both Douglas and Boeing are hot after airline business as trend to jets gains momentum. Boeing has finished year's testing program of its prototype.

#### TOOL MAKERS SMILE THROUGH FLOOD AND LAG—P. 79

Machine Tool Builders remain calm in the face of New England flood and July dip in sales. Some tool plants were hard hit by flood waters but on the whole the industry escaped lightly. The lag in sales is attributed to summer vacations and pre-show lull.

## ENGINEERING & PRODUCTION

### IN-PLANT PLATING MOVES PRODUCTS FASTER—P. 91

Lower plating costs, substantially reduced inventory and improved customer service are the primary benefits of an in-plant zinc barrel plating installation. The automatic line has cut down a 5 to 7-day minimum delivery time to a few hours. About 50 to 60 different parts are plated in the regular daily schedule.

### HEAT TREAT FOR BETTER MACHINABILITY — P. 94

This article—based on shop experience—tells how heat treating provides better machinability. Plain carbon and alloy steels are machined more efficiently after heat treating. Surface finish is improved at high speeds and feeds, depending on the metallurgical structure. Understanding "ductility-strength" relationships helps solve many machining problems.

### INCREASE DUST COLLECTOR EFFICIENCY — P. 98

Collecting sinter more effectively can boost a sintering plant's profits. One recently installed collector has increased sinter accumulation at a surprising rate. Operating costs for the new collector are low—principally the cost of electricity to drive a 1,000 hp motor.

### FURNACE CONTINUOUSLY MELTS ALUMINUM — P. 101

A radiant, gas-fired furnace melts aluminum continuously at less cost. Ingot is automatically fed to provide a continuous source of molten metal for casting. Minimized heat losses conserve fuel and improve working conditions. The new furnace provides 2000 lb of aluminum hourly, with only a few hundred pounds in the molten state at any given moment.

### SLITTER COORDINATES PRODUCTION FLOW — P. 104

From \$90 to \$100 thousand will be saved yearly by in-plant slitting of coiled strip previously purchased slit to specifications. One operator handles the entire line. Slitting speeds range from 50 to 200 sfpm. An adjustable tension control permits slitting thin stock.

## MARKETS & PRICES

### HOUSING DEMAND STRONG FOR 1956 — P. 53

Demand for new homes should remain strong, if plans are carried through. At least 8.5 pct of families intend to build or buy next year. Plans show that 9.4 pct of all non farm families are probable buyers this year. Six months ago, only 6.6 said they had buying intentions. Easy credit is a factor.

### OUTBOARD MOTORS MAKE BIG SALES SPLASH — P. 56

Sales of outboard motors will hit about \$130 million this year. This is 10 pct over 1954 figure, nearly \$110 million more than in 1941. Motors will take 21 million lb of aluminum as trend is toward bigger units. Outboards are used most for fishing. People in all occupations have taken to outboard motoring.

### MORE COMPANIES LAND DEFENSE CONTRACTS—P. 73

More contracts go to companies without previous government experience as Defense Dept. stresses turnover in supplier lists. One of every three contracts now goes to previous have-nots, trend will continue and broaden. Orders for shift come from the top. They hold out new hopes for companies that before were frozen out of U. S. business.

### FLOODS HURT STEEL DELIVERIES — P. 132

Floods in the East and Northeast will have a very definite effect on delivery schedules of a wide range of products ranging from constructional wire through reinforcing bars, plates, structurals, rails, etc. Extent of schedule disruption is still to be determined, but it will be heavy.

### FLOOD DAMAGE WORSENS STEEL SUPPLY — P. 131

Priorities for flood-stricken communities of the northeast will further tighten the already-critical steel supply situation. Government and voluntary actions by steel producers is sidetracking heavy tonnages of steel products to help expedite the rebuilding problem faced by areas hard-hit by high waters.

## NEXT WEEK:

### HOW TO FORGE HIGH TEMPERATURE ALLOYS

Good forging results can be attained with high temperature alloys using correct temperature control and proper production rates and methods. High alloy forgings may solve problems for design engineers working on these applications. Methods used show promise forgings can be made on a production basis.

### HOW DO WE STAND ON PLANT LIGHTING TODAY?

Just how good or how bad is industrial lighting today. Is poor lighting cutting into production efficiency? Next week's special report goes into these questions, telling what the current status of work lighting is, suggesting what can be done about lighting defects. A vital subject gets detailed coverage.

# JEFFREY

## transmission parts for perfect performance



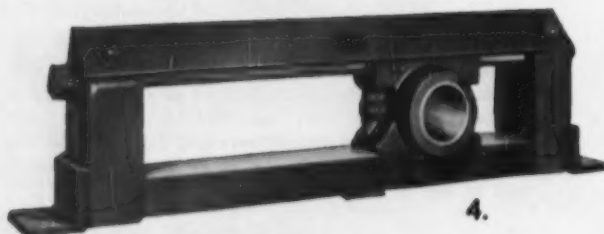
1.



2.



3.



4.



5.

Modern conveyors demand perfect performance from even the smallest part. That's why Jeffrey's smaller replacement parts—like Jeffrey heavier equipment—are all masterpieces of precision and design. Each is made of the best metal for the service, properly treated and formed for accurate balance, close tolerance, smooth surfaces and long, trouble-free service. Your conveyor replacement needs can all be met from one source—Jeffrey! Most parts are now in stock, ready for immediate shipment.

*Write for technical literature*

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2. **JEFFREY SET COLLARS** of the accepted safety type: Split or Solid Cast Iron . . . Solid Steel . . . machine faced and bored true.
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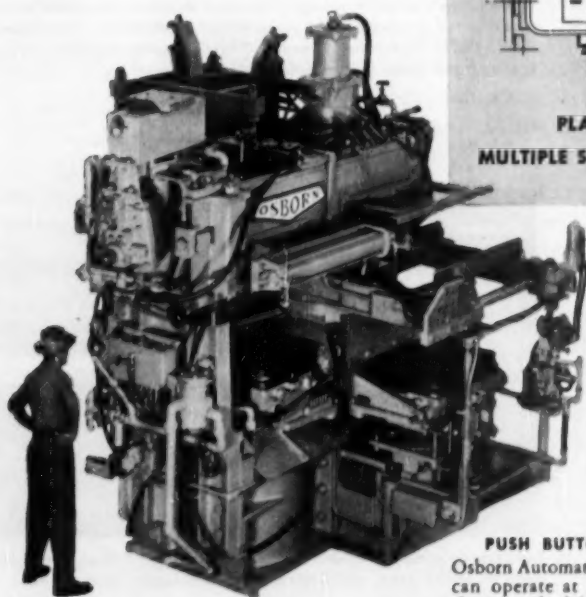


# For lower-cost molding...look into OSBORN FOUNDRY AUTOMATION

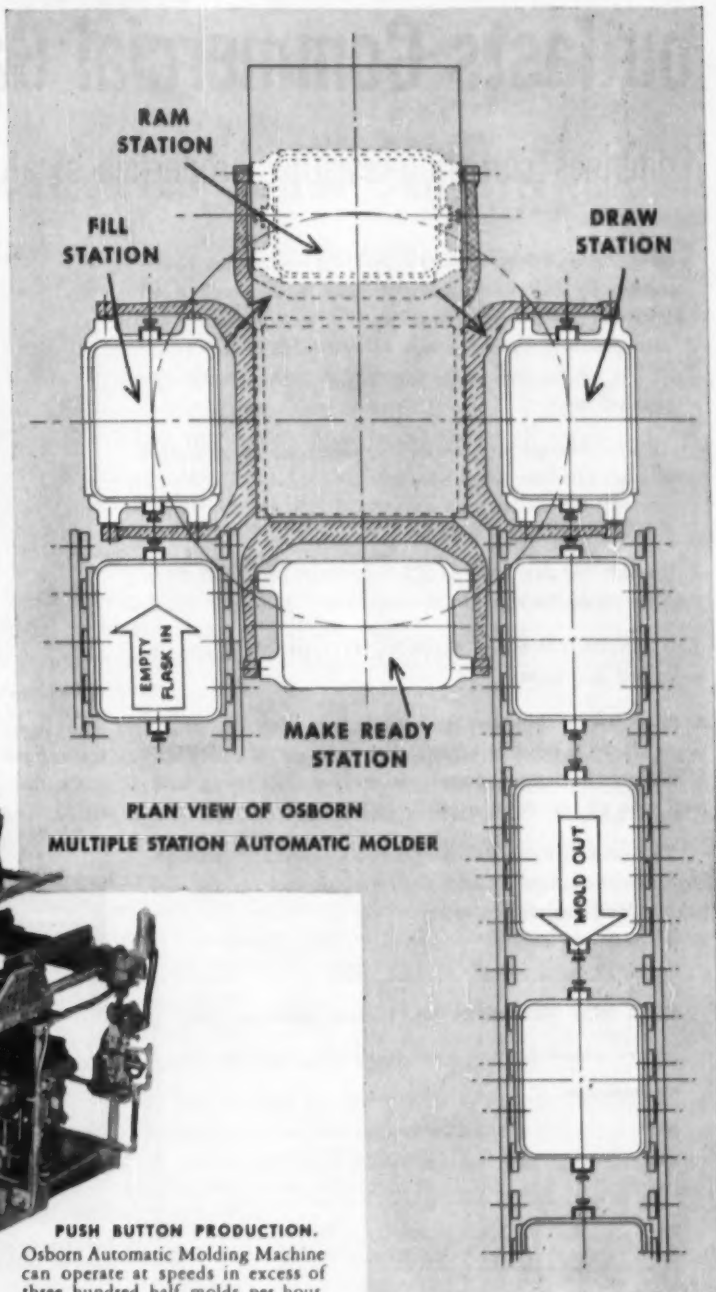
Osborn's new automatic molding machine fills flasks, jolts, squeezes, draws the pattern, ejects the finished mold. Production is on a preset time cycle. Molds are uniform in density . . . held to close tolerances.

Conveyors for handling flasks and machines for turning over flasks are available as auxiliary equipment.

Have Osborn study your operations . . . show how you can cut costs with foundry automation. Write The Osborn Manufacturing Company, Dept. FF-35, 5401 Hamilton Avenue, Cleveland 14, Ohio.



**PUSH BUTTON PRODUCTION.**  
Osborn Automatic Molding Machine  
can operate at speeds in excess of  
three hundred half molds per hour.



## OSBORN

MOLDING MACHINES

CORE BLOWERS

INDUSTRIAL BRUSHES

Another example of Osborn leadership and advanced engineering

September 1, 1955

15 years of testing in atmosphere show

# New ARMCO ALUMINIZED STEEL outlasts Commercial Galvanized 3 to 1

Combines corrosion-resisting properties of aluminum with strength of steel

A new Armco aluminum-coated steel that resists atmospheric corrosion at least three times as long as the coating on commercial galvanized steel sheets is now available for use in your products. Called Armco ALUMINIZED STEEL® (Type 2), it has all the surface advantages of aluminum plus the strength of steel.

Besides strength and corrosion resistance, this new steel gives your products these benefits:

1. It reflects 80% of the radiant heat thrown against it.
2. It resists fire damage. At 800 F, for example, it has more than ten times the strength of aluminum.
3. It withstands forming. ALUMINIZED (Type 2) also can be embossed and spun.
4. It generally costs less per square foot than aluminum, even when thickness is equal. And because ALUMINIZED STEEL permits lighter gages for comparable strength, it may save you as much as 40% to 50%.

This exciting new steel can give your "outdoor" products big sales advantages. Get the full story on sizes, gages and prices. Mail the coupon today.

ARMCO STEEL CORPORATION, 405-B Curtis St., Middletown, Ohio

Send me complete details on Armco ALUMINIZED STEEL (Type 2).

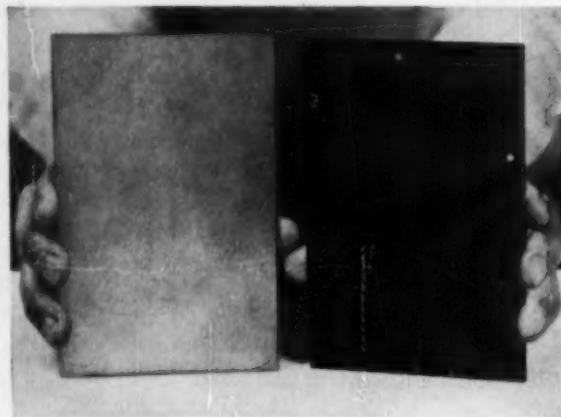
We manufacture \_\_\_\_\_

Name \_\_\_\_\_

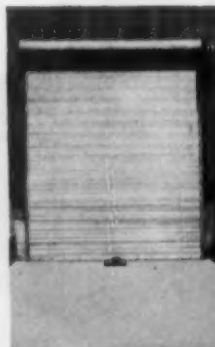
Firm \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



In atmosphere corrosive enough to cause a standard galvanized coating (right) to fail completely in 12 years, Armco ALUMINIZED STEEL (Type 2) looked like this (left) after 15 years. Cleaned samples show the aluminum coating is still giving full protection to the base metal.



Resistance to atmospheric corrosion makes ALUMINIZED (Type 2) an ideal metal for rolling doors, roof deck, buildings and similar applications.



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MIDDLETOWN, OHIO

**SPECIAL STEELS**

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Indexed in the Industrial Arts Index  
and the Engineering Index.



## Editorial:

### What Price Labor Stability?

♦ THE FORD MOTOR PLAN for supplemental unemployment bene-  
fits (SUB) has started a chain reaction in management which is  
reverberating throughout the private offices of industry. The end is  
not yet in sight by a long shot.

The fine print in the Ford (and GM) SUB agreements shows  
that the auto union didn't get what it says it got. There is no guar-  
anteed wage. When the money is all gone that's all there is.

The same thing goes for the can company agreements signed a  
few weeks ago. The steelworkers' union got what looked like a better  
deal than the auto workers but when the money is used up that's all  
there is until there is a buildup.

It would be easy to say that the unions didn't get much and let it  
go at that. But that isn't the whole story. The unions did get a lot.  
Many business people think they got more than management had to  
give up at this time.

From that point on the argument goes into high gear over the  
"principle of the thing." In the so-called SUB agreements manage-  
ment admitted it has a definite and social responsibility for unem-  
ployment; this is the "right" which the union won. Management—  
signing such agreements—agrees to pay that obligation in money.

The union has its foot in the door for a bigger and gaudier SUB.  
You can be sure that the evolution of this plan will parallel that of  
the non-contributory pension, the almost-guaranteed annual wage  
hike and the growing health fringes.

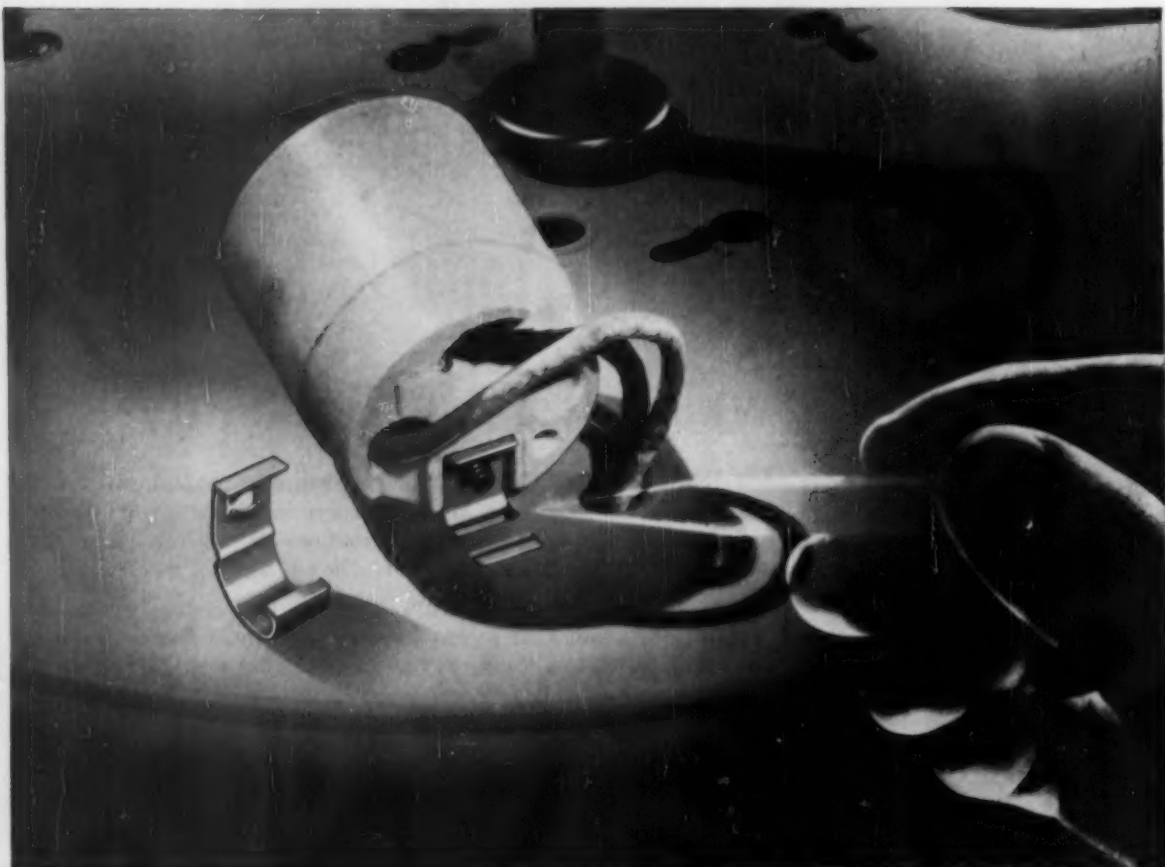
Underlying these SUB agreements is the decision of a growing  
segment of American industry to pay a big price for stability—a  
price to prevent costly strikes and labor troubles.

Whether or not you belong to the group which is buying steady  
production with fringe benefits, you are bound to be affected by what  
it does. When your union contract comes up for negotiation you will  
be working in the shadow of the trend to SUB—if not this year then  
next year; or the year after.

The big riddle now is, what happens in steel next year? It all  
depends on the temperature of business—and how potent the political  
slogan "Don't rock the boat" will be.

*Tom Campbell*

EDITOR



**Engineered by Tinnerman...**

**THIS SPEED NUT® FASTENS WITH ONE MOTION,  
STAYS TIGHT FOR KEEPS... and saves money!**

This SPEED NUT developed specially for ceiling lights produced by the Imperial Lighting Products Company, Latrobe, Pennsylvania, gained almost unbelievable savings of 80% in assembly time!

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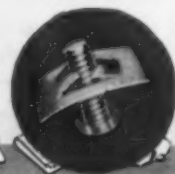
This is a typical example of SPEED NUTS engineered for special fastening applications. Tinnerman develops an average of 4 new SPEED NUTS every day for products of every description. And there are more than 8,000 existing variations to choose from.

A Tinnerman Fastening Analysis Survey can quickly tell you where SPEED NUT brand fasteners belong on your assembly line. Call in your Tinnerman representative soon for full information and write for our Fastening Analysis Service Bulletin No. 336.

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**TINNERMAN**

***Speed Nuts***  
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dear editor:

### Is There a Steel Shortage?

Sir:

We don't like this week's editorial. ("Is There a Steel Shortage?") Sure we remember—we bought the house we still live in in 1927. We also remember a magazine called the *Literary Digest* that was going strong. Did some poor forecasting, as we remember.

Here we are in 1955 being told we erred in not buying steel last fall. Last fall the sheet steel salesmen were begging us to buy steel. Future business looked bad for the little fabricator—maybe another so-called post war recession. THE IRON AGE was not encouraging, except for public works, etc., projects.

Many of us had large inventories at that time. THE IRON AGE was beginning to tell us of a possible automobile strike. Steel—all you wanted—would be available. Forecast: Auto Strike inevitable, but no Steel Strike. Wages are the only issue.

Sounds to us that THE IRON AGE is trying to put the blame on the steel customers—when what is needed is an investigation of the Steel Companies' management and better forecasting by THE IRON AGE. *R. K. Price, President, Tidewater Boiler Works, Inc., Port Richmond Terminal, Pier 13, Philadelphia.*

You must be thinking of another magazine. We repeatedly and flatly predicted a peaceful auto settlement, said a steel strike was unlikely. (Steel negotiations hit a last minute hitch; the strike lasted just 12 hours). On November 18, pp. 95-97 we wrote "Things Look Good for 1955," in which we predicted 106 million tons of steel in 1955, some 20 pct above the '54 level.—Ed.

### Personal Recorder

Sir:

THE IRON AGE "Newsfront," page 41 of the June 16, 1955, issue, mentions a personal recorder so small that it fits in the palm of your hand.

### letters from readers

We would like to get additional information on this item, and would appreciate any help you could give us regarding what company manufactures this item and where we could write them for information. *D. D. Ruggles, The Sheffield Corporation, Dayton.*

More details on Minifen P-55, a personal recorder, may be obtained from Geiss-America, 6424 N. Western Avenue, Chicago 45.—Ed.

### Stainless Steel Wire

Sir:

In your weekly Forecast, page 33 of your June, 1955 issue, you described a stainless steel wire with improved workability, corrosion resistance and coiling properties.

Could you kindly disclose where we can obtain information about this development? *V. A. Stanton, Jr., Chief Metallurgist, National-Standard Company, Niles, Mich.*

Further information may be obtained from The Carpenter Steel Co., Webb Wire Division, New Brunswick, N. J.—Ed.

### "100 Years"

Sir:

I am only recently back from Europe and have finally had a chance to examine very carefully your 100th Anniversary Issue.

Please accept my heartiest congratulations on this splendid volume which really is a history of the United States for the past 100 years. The old-fashioned illustrations and the old-style advertising are especially fascinating, and I am proud of the reproduction of Nicholson File Company's first advertisement of January 16, 1873.

I have been told that THE IRON AGE was a business Bible with my great-grandfather and my grandfather; and coming down the line my father and I have known and appreciated your magazine for many years. *P. C. Nicholson, Jr., President, Nicholson File Co., Providence.*

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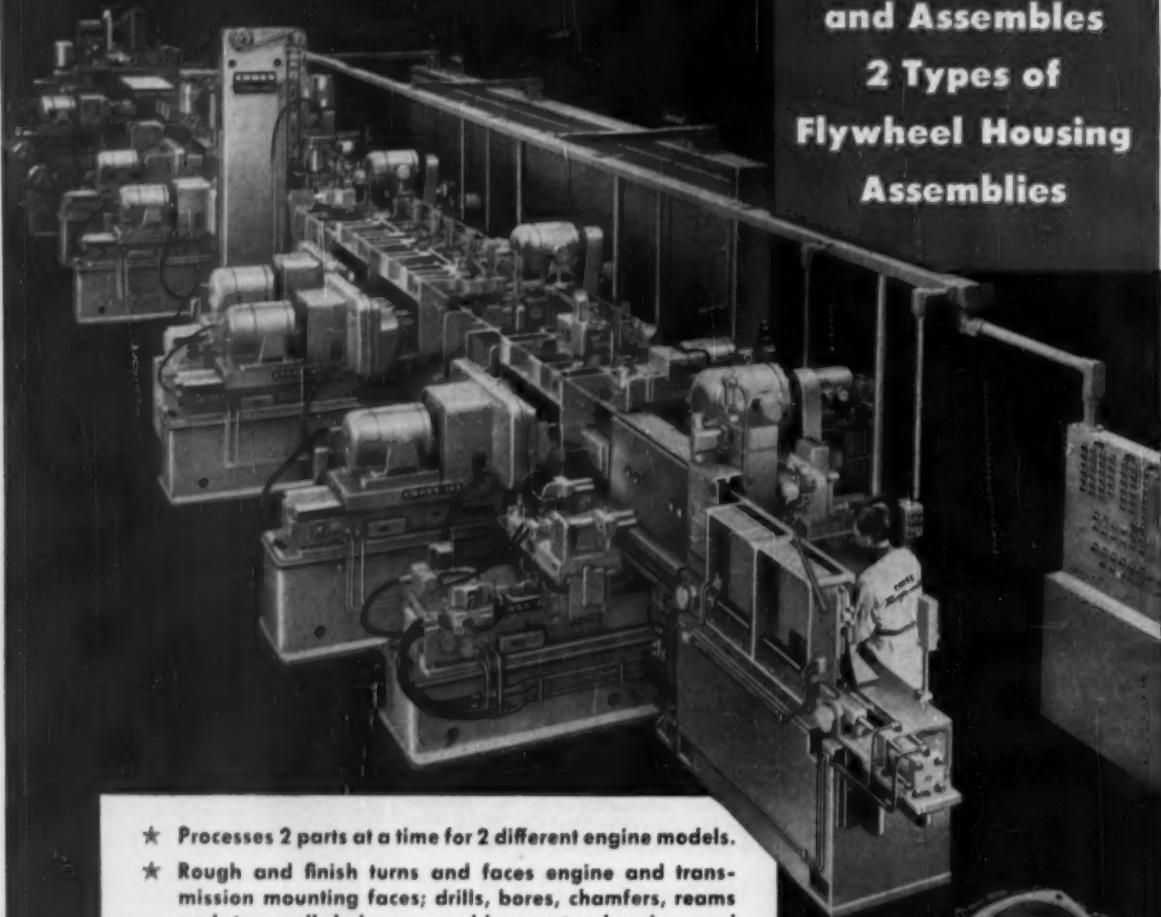
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- ★ Processes 2 parts at a time for 2 different engine models.
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*Special* MACHINE TOOLS

## fatigue cracks

by William M. Coffey

### It Awes Us, Too

Mr. Rod Nickum, of West Virginia, who says he's been reading *THE IRON AGE* from cover to cover for 48 years (likes *Dates To Remember* best) has once again rescued this tired column. Rod sent us this letter, clipped by his own hand, from the Charleston, W. Va., Daily Mail.

#### To The Editor of The Daily Mail:

Over the years I have found the Daily Mail an honest, dependable newspaper which endeavors to play fair. But the other Charleston newspaper seems to delight in smearing people, even in their death notices.

To say in a man's obituary that "He was a known gambler" struck me as the most vicious and out-of-place thing that the Gazette could print. It awed me.

It makes me wonder whether I should stay on here and die in Charleston for fear of what that paper might put in my brief death notice. I can almost see it now. "Oscar Beetle, 46, died last night. He chewed tobacco. He traded at the state liquor store. He was slow to pay his debts. He will be buried in a pauper's grave tomorrow. He was no-account."

Oscar Beetle

### Caleb Flerk's Own Story (Part III cont.)

Synopsis of preceeding installments—Caleb Flerk has appropriated a navy fighter plane abandoned on Caleb's farm at the end of the war. Last week he succeeded in starting the engine and now he's off for his first flight. Caleb, in his own words, continues his adventures.

There was quite a crowd gathered

by now waiting to see me fly this here job cherin and callin to me so I get set to go and start pushin and pullin a bunch of handles and knobs real cautious like until finally i find the one that jazzes the engine right good. I jazz her a few times to get the crowds at-tenshun and when theyre all wavin to me and yellin, i look out at em, leave em have a big smile, and spit real casual an delibbarate-like i seen that feller do in the movies, and then jam the handle plumb up to the hilt. The motor leaves off a roar the like of which i aint ever heard in all my born days and i git shovved against the back of the seat so hard i caint hardly catch my breathe and that arrplane starts buckin and bouncin acroast the feeld like a buck stallion. I never feel so much power strapped onto one machine in all my life and the ground keeps whirrin by faster an faster and them chimneys over at Easbys keep growing bigger and bigger. (To be cont.)

### Puzzlers

That little ole fly was squashed between the horses after traveling 90 miles (Aug. 11 puzzler). And everybody answered this one: D. E. Jacobson, Emsco Mfg. Co.; Charlsie and Dale Letterman; Chris Rick, Du Pont; Wm. E. McCord; Joseph McHugh, KSM Products, Inc.; Jim Mull, The North American Manufacturing Co.; Leo King, Automatic Machine Prods. Co.; James F. Carlin, Jr., Chilton Co.; Fred P. Boulais, Acme Steel Co.; Austin H. Phelps; George Pascoe, Ford Motor Co.; L. B. Shapleigh, Bethlehem Steel Co.; Fred Kuss, Jr., Kuas Machine Tool & Die Co.; I. M. Darcey; Holland Slutz II, Wheeling Steel Co.; Paul L. Sweeney, Firestone Tire & Rubber Co.; C. L. Langenberg, Oldsmobile Div., GM; Connie, Niagara Falls; Ray Robinson; A. L. Milford, Fairfield Mfg. Co.; and ole Joe Brugman.

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CASTINGS...  
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PROFITS



Build better profits from higher grade, controlled castings which have the uniform characteristics you get by degassing your melts in the Kinney Mobile Vacuum Degasser. Here's how this unit helps you do it:

- Improves density and physical characteristics of castings
- Eliminates chemical and gas flushing
- Lets you use lower grade metals
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The Kinney Mobile Vacuum Degasser is a dependable, trouble-free unit of rugged design, built to stand the test of modern foundry operation. The vacuum chamber is generously proportioned and designed for easy melt control and observation. Rapid pump down to low pressures is achieved by an efficient Kinney Model KDH-130 vacuum pump . . . gas ballasting, a primary requirement for efficient operation, is featured.

Put your foundry on the road to better castings and better profits . . . write today for Bulletin 402. Kinney Manufacturing Division, The New York Air Brake Company, 3634 Washington St., Boston 30, Massachusetts.



# Within the Span of a Man's Hand

The power to transmit  
the commands  
of the operator  
to the machine . . . . .

By means of the movable PENDANT CONTROL the start and stop of the spindle; selection of speeds, feeds and directional movements of all heads in feed or traverse are quickly and easily accomplished. Interlocks and a stopall stick provide safety for both operator and machine.

## *Additional features include:*

### **SCREW FEED**

for vertical and horizontal motion of all heads — to assure fine smooth finishes with greater accuracy.

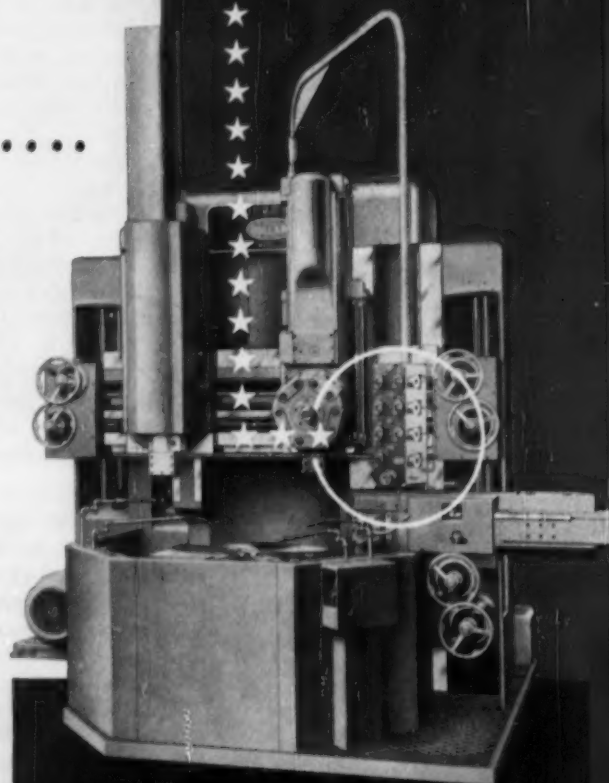
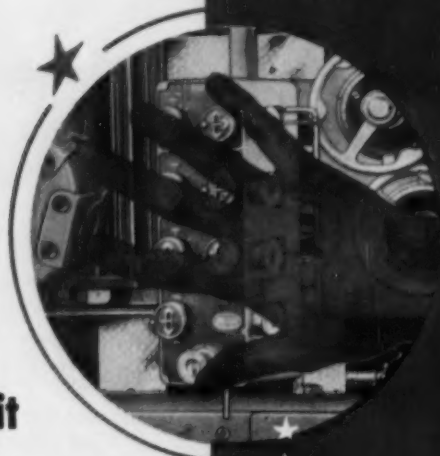
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Five sided turret for "run of the mill" jobs. Four sided turret for production jobs.

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**CUTMASTER  
VERTICAL  
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AVAILABLE IN 26,  
36, 46, 56, 66 AND  
76 INCH SIZES



## dates to remember

### SEPTEMBER

**AMERICAN MACHINE TOOL DISTRIBUTORS ASSN.**—Annual meeting, Sept. 5-6, The Blackstone, Chicago. Association headquarters are at 1900 Arch St., Philadelphia.

**INSTRUMENT SOCIETY OF AMERICA**—Annual meeting, September 12-16, Shrine Auditorium, Los Angeles. Society headquarters are at 1319 Allegheny Avenue, Pittsburgh.

**PACKAGING MACHINERY MANUFACTURERS INSTITUTE**—Annual meeting, Sept. 15-18, The Homestead, Hot Springs, Va. Institute headquarters are at 342 Madison Avenue, New York.

**SOCIETY OF INDUSTRIAL PACKAGING & MATERIALS HANDLING ENGINEERS**—Annual meeting, September 19-22, Kings Armory, New York. Society headquarters are at 111 West Jackson Blvd., Chicago.

### EXPOSITIONS

Chicago, Sept. 6-17.

**MACHINE TOOL SHOW** — International Amphitheatre.

**PRODUCTION ENGINEERING SHOW**—Navy Pier.

**COLISEUM MACHINERY SHOW** — The Coliseum.

### OCTOBER

**AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS**—Fall general meeting, October 11-15, Morrison Hotel, Chicago. Institute headquarters are at 36 W. 46th St., New York City.

**AMERICAN CHEMICAL SOCIETY**—National Chemical Exposition, October 12-15, Chicago Coliseum, Chicago. Society headquarters are at 86 E. Randolph St., Chicago.

**FOUNDRY EQUIPMENT MANUFACTURERS ASSN.** — Annual meeting, October 13-15, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at 1008 Engineers Bldg., Cleveland.

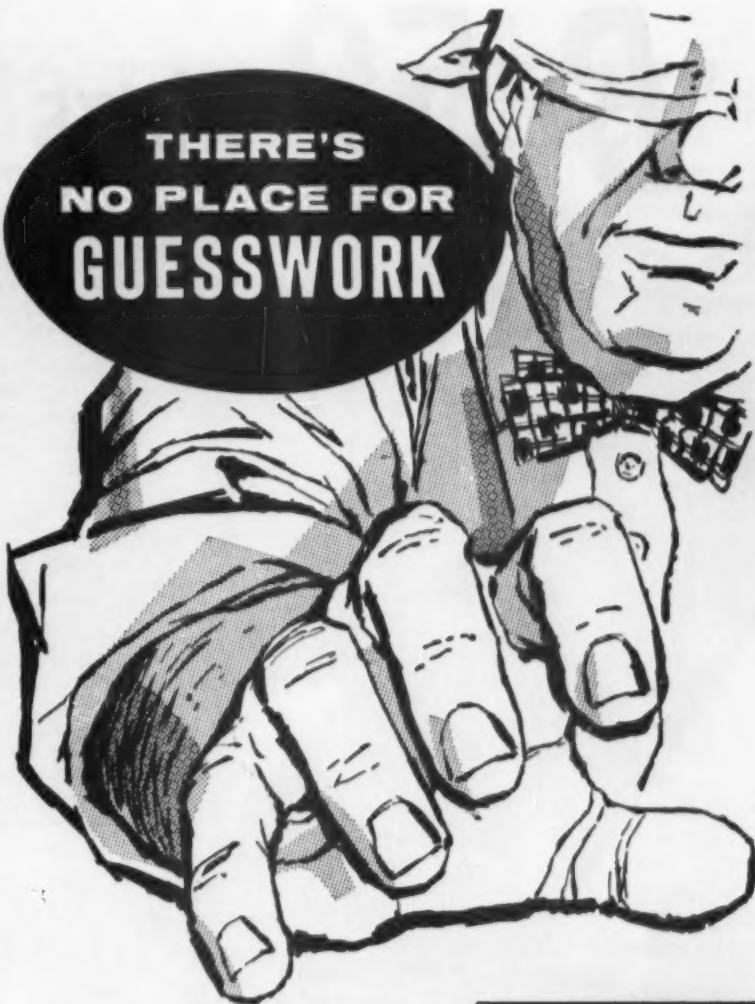
**CONVEYOR EQUIPMENT MANUFACTURERS ASSN.** — Annual meeting, October 15-18, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters are at No. 1 Thomas Circle, Washington, D. C.

**AMERICAN COKE & COAL CHEMICALS INSTITUTE**—Annual meeting, October 17-18, The Greenbrier, White Sulphur Springs, W. Va. Institute headquarters are at 711 Fourteenth St., N. W., Washington, D. C.

**AMERICAN GAS ASSN.**—Annual convention, October 17-19, Los Angeles. Association headquarters are at 420 Lexington Ave., New York City.

**AMERICAN WELDING SOCIETY**—National fall meeting, October 17-21, Philadelphia. Society headquarters are at 33 West 39 St., New York City.

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5006-CH

# B-52 wings get a lift



This huge press, installed at Boeing-Wichita where it produces inner skins, wing stiffeners and similar components for the B-52, has three features that are proving a boon to cost-conscious Boeing engineers and taxpayers alike:

- Its tremendous power allows Boeing to heat treat parts prior to forming—giving them the added strength they need.
- The rubber pad slashes tooling time and costs—a significant advantage in short-run production.
- The two die slides boost output: while one is in the press, the other is loaded.

Like all Bliss Hydro-Dynamics, regardless of size, this press is fast starting, quick on the approach and return (300" per minute). Its controls are simple, and operation foolproof.

If you believe that a hydraulic press may solve your production needs, let a representative give you the benefit of Bliss' experience. Since Bliss manufactures a complete line of hydraulic and mechanical presses, you can be sure of an impartial recommendation—a recommendation that results in the one right press for the job.

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**TWO STORIES HIGH**, this press is essentially a single action press of open-rod "moving down" construction, with the slide guided on all four rods. Despite its mass, however, it can be precisely controlled: the operator can inch the slide to the work and stop it at any point in the stroke.

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WILL FORM LARGE METAL PRODUCTION PARTS  
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WEIGHT **500 TONS** **\$499,790**  
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## RECTIFIERS

# GERMANIUM and SELENIUM

For low voltage power rectification, H-VW-M's complete line of rectifiers answers your every requirement! High quality, top efficiency and unusual adaptability are only part of their product story; other outstanding advantages include economical operation, low maintenance, high power factor and low ripple.

Whether it's 6, 9 or even 48 volt output you require . . . whether your choice, based on economic considerations, calls for a selenium or the newly-developed germanium type of rectifier . . . you'll find an H-VW-M unit that will give outstanding service in providing a dependable low-voltage current supply to electrolytic processes. The types of voltage controls providing either smooth stepless or small incremental changes in

output from zero to rated voltage make it an easy matter to obtain uniform deposits. Since H-VW-M supplies both rectifier types (and generators, too), you can be sure of an unbiased recommendation—the right recommendation for your installation. Check the features of these two advanced H-VW-M types—and see how an H-VW-M Rectifier fits into your power picture.



### NEW H-VW-M GERMANIUM RECTIFIERS

Designed for 24-hour-a-day service at full capacity, H-VW-M Germanium Rectifiers have numerous voltage ratings from 12 to 48 volts for standard units and an even wider range for special units. Current outputs are from 1000 amperes up. Principal features of the germanium junction are its very low voltage drop, high inverse voltage rating, and very small reverse current.

- **Outstanding efficiency and voltage regulation** — Greater than 90% efficiencies at full load. Voltage regulation better than  $\pm 5\%$  from no load to full load without special additional controls.
- **Several types of controls** — Single wheel manual tap switch, motor-driven tap switch, or motor-operated, oil-immersed, continuously variable auto-transformer controls — whichever fits the plating requirement most economically.
- **Cooling** — Simple forced air cooling by sturdy updraft fan mounted in top.
- **Electrical protection** — Safeguarded from overloads and DC line shorts by replaceable link-type fuses in the output circuit; thermal overload switch and magnetic contactor complete the protection.

Write for Bulletin GR-100



### H-VW-M SELENIUM RECTIFIERS

For voltage output requirements ranging from 6 to 48 volts, from 15

amperes and up — bench, self-contained, or remote controlled. Economical, efficient, dependable, and simple to operate.

- **Greater effective selenium plate area per ampere** — Limits rise in stack temperature to insure long life.
- **Electrically balanced selenium plates** — Only electrically identical plates are assembled into same stack for greater efficiency and durability.
- **Corrosion protection** — Special fungus and moisture proof coating guards against deterioration of stacks and transformers.
- **Adaptability** — Auto-transformer in regular units can be used for either 220 or 440 volt input.
- **Electrical protection** — Complete overcurrent and undercurrent protection. Thermostats guard against overheating.
- **Forced air cooling** — Same efficient cooling system as in germanium rectifier cools both selenium stacks and transformers, adds safety.

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### PLATEMAKSHIP

Your H-VW-M combination—of the most modern testing and development laboratory—of over 80 years experience in every phase of plating and polishing—of a complete equipment, process and supply line for every need.

There's an H-VW-M unit to cover every DC low-voltage requirement. One more reason why — when it's a question of equipment or supplies — the metal finishing industry always thinks of H-VW-M first!

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USS TRI-TEN • USS COR-TEN • USS MAN-TEN



UNITED STATES STEEL



"We've really learned  
— *says Bill Ednie* —



U N I T E D   S T A T E S   S T E E L

# how to control quality"

## U. S. STEEL INSPECTOR

● You'd want to meet Inspector Bill Ednie if you visited our Homestead District Works Forge Department. He has been an inspector now for 16 years. His father was a U.S. Steel Inspector at Homestead, too—back in the days when you tested forgings with a light bulb and a ball peen hammer.

Now, of course, Bill has the advantage of amazingly accurate test equipment, but he still has to be right on his toes to analyze the complex inspection data. In other words, he is the man who actually "signs out" the forging, and makes sure that it meets every specification.

If you had talked to Bill Ednie when we took these photographs, the conversation might have gone like this:

**YOU:** "How much does this forging weigh?"

**EDNIE:** "86,000 pounds. It's a steam turbine generator shaft."

**YOU:** "Is this the first inspection made on it?"

**EDNIE:** "No. This is one of the last. Right after it was forged, we 'barked' it—put it in a lathe and took enough metal off to get a smooth surface. Then I made the first sonic test and found the piece was free of thermal ruptures and internal voids."

**YOU:** "How does this sonic tester operate?"

**EDNIE:** "Well, it sends a pulse of energy through the forging and it bounces back from the other side. The trick is analyzing the trace on the oscilloscope to be sure the piece is sound all the way through. We use this test for quality control during manufacture."

**YOU:** "Do you make other tests?"

**EDNIE:** "Always. After we finish the first machining operation, we go in with a trepanning tool and get test bars. Then we send the bars to the lab for tensile and Charpy impact tests and micro tests to check grain structure and cleanliness of the metal."

**YOU:** "How about the center of the piece?"

**EDNIE:** "We usually bore and ream a hole all the way through, then give the entire inside a boroscope examination. This way, you can actually see that the center of the forging is sound."

**YOU:** "Does that about wind it up?"

**EDNIE:** "For this generator shaft, yes. But inspection often gets more complicated on other forgings. Take a steam turbine rotor. After we bark it, it goes into the heat treating furnace for over 200 hours. Then it's tensile tested, bored, final rough machined and stress relieved. And after that, it gets the heat-indication or stability test."

**YOU:** "What's that?"

**EDNIE:** "It's a test to show how the rotor will behave in actual use. We put the rotor in a combination lathe-furnace—it's a furnace built on a lathe. The rotor is revolved for about 100 hours at the temperature it will encounter in actual service. If it passes this test, it won't change shape after it's installed."

**YOU:** "How do you know what tests to make?"

**EDNIE:** "That depends on the end use of the forging. Sales, Technical, Operating and Production men all work with the customer to determine what tests are needed for any one job."

"Sometimes we make scleroscope tests—that's a way to check hardness without marking the piece. Other times we run Magnaflux tests. All in all, we have the most modern testing equipment available."

**YOU:** "How do you figure that all this inspection pays off for the customer?"

**EDNIE:** "I think the biggest thing is that—because of better inspection—we've been able to develop better production methods. This naturally means fewer rejects, so our customers get better delivery."

"We've really learned how to control quality, and that's what the customer wants. This shop has been going for a long time, and every one of the gang has found that satisfied customers mean more work for all of us."

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When you buy Quality Forgings from United States Steel, men like Bill Ednie work on them. We'll stack their work up against the finest in the land, and we're confident in our ability to furnish the highest quality forgings made. Please send your inquiries to United States Steel, Room 4840, 525 William Penn Place, Pittsburgh 30, Pa.

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*Quality*  
**FORGINGS**

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alloy, stainless

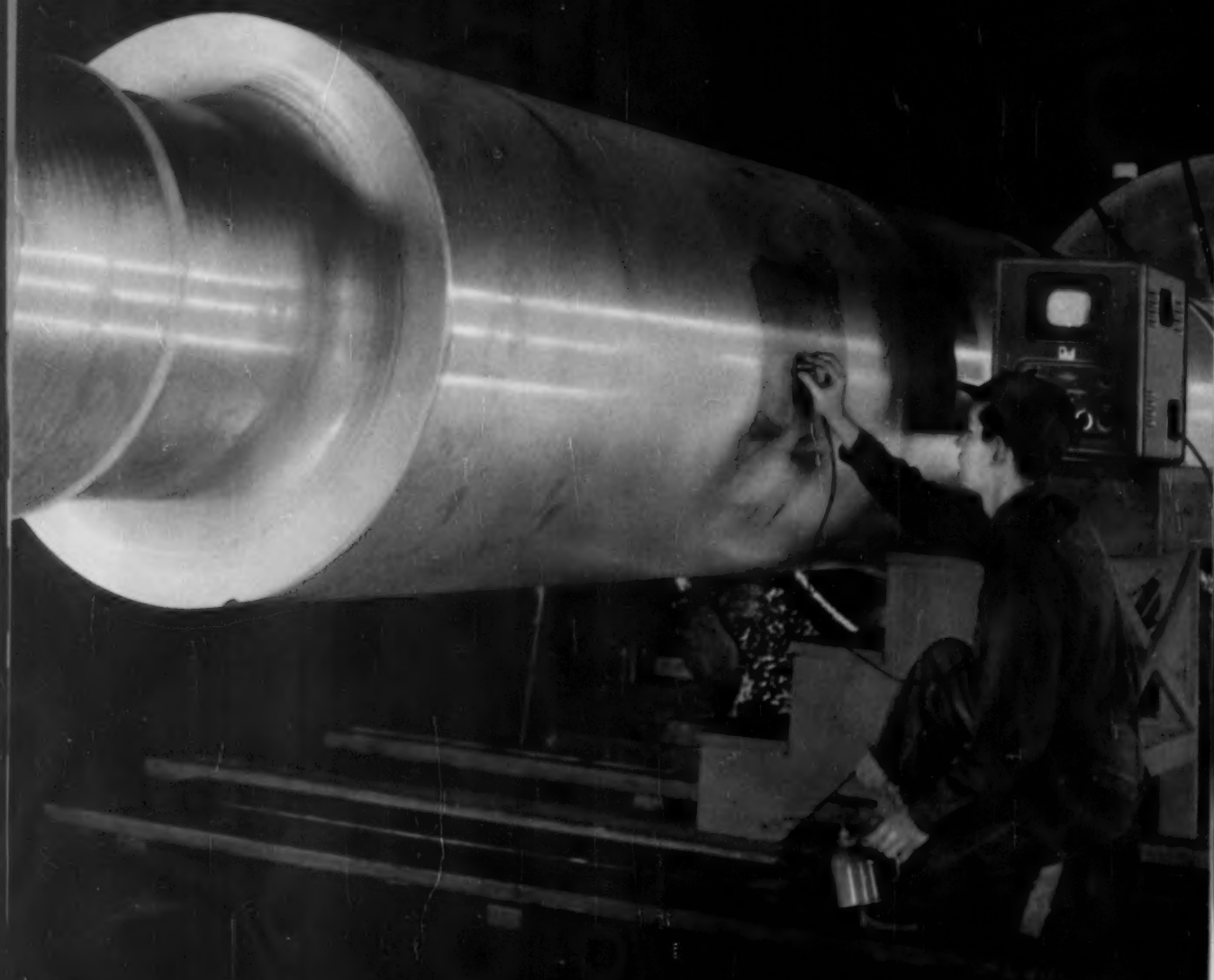
electrical and  
water wheel shafts

hammer bases  
and columns

marine forgings



"We've really learned  
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U N I T E D   S T A T E S   S T E E L



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**Quality**  
**FORGINGS**

heavy machinery  
parts—carbon,  
alloy, stainless

electrical and  
water wheel shafts

hammer bases  
and columns

marine forgings

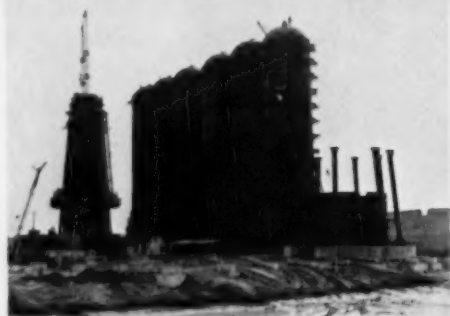


**HEAT-RESISTANT CONCRETE** is easily placed in blast-furnace stove pads at U.S. Steel Corporation's Fairless Works, Morrisville, Pa. Industrial Concrete made with Atlas Lumnite cement speeds placement...reaches service strength within 24 hours!

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**How can these skills of  
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## **Many experienced G-E defense subcontractors offer capacity to help you speed production, cut costs**

Over the past years thousands of small businessmen have developed special valuable skills and services as suppliers and subcontractors on G-E defense projects. Today G-E is vigorously at work on many vital defense programs; but as the Armed Services iron out the high volume peaks brought about by the Korean crisis, some of these highly trained G-E subcontractors have the capacity to work on other civilian or defense projects.

Experience in "operation teamwork"—G.E.'s long established policy of sharing defense orders with small business—means that these small companies have the knowledge and ability to meet exacting specifications and produce parts and assemblies with speed and efficiency.

Their special skills, tools and machines contribute greatly

to the defense effort, in speeding production and in cutting costs. Many have diversified their subcontracting activities and have developed marketable products of their own, thus adding to the peacetime economy.

Today most of these small businesses continue to contribute to the defense effort and all of them serve as part of the broad base upon which the future defense of America depends. Many of them, though, now have capacity in excess of current demands and may be able to apply their talents and skills to help solve your production problems.

649-1

**HERE'S HOW SMALL BUSINESS CAN HELP YOU...**

**GENERAL**  **ELECTRIC**



### CASE 1

**Name:** Universal Machine Co., Fenton, Michigan

**Part Manufactured:** Housings, casings, retainers, sheet metal fabrications, etc.

**Facilities:** 65 skilled machinists in modern plant

**Record:** Co-operative, experienced, quality producer



### CASE 2

**Name:** Mecro, Incorporated, Paris, Ill.

**Part Manufactured:** Aluminum and stainless steel parts; weldments

**Facilities:** Added machinery and increased engineering staff; total employees 275

**Record:** Outstanding performance record since 1950; recently expanded operations in the field of electronics



### CASE 5

**Name:** Varo Mfg. Co., Inc., Garland, Texas

**Part Manufactured:** Electronic components for armament system

**Facilities:** New plant with adequate equipment and 297 employees

**Record:** A very satisfactory, quality job on complex equipment



### CASE 6

**Name:** J. Leukart Machine Co., Columbus, Ohio

**Part Manufactured:** Rings, gear cases and other precision aircraft parts

**Facilities:** 150 machinist and engineers in up-to-date plant

**Record:** Excellent quality source that consistently meets delivery schedules; experienced in machining titanium





### CASE 3

**Name:** Watson Manufacturing Company, Jamestown, N. Y.

**Part Manufactured:** Sheet metal fabrication

**Facilities:** Completely modern plant with up-to-date equipment

**Record:** Delivery performance has been excellent



### CASE 4

**Name:** Corry Instrument Co., Corry, Pa.

**Part Manufactured:** Bar spray, nozzles

**Facilities:** Modern plant housing 30 technicians

**Record:** Accurate manufacture of parts requiring extremely close tolerances. On-time delivery

## These representative case histories show what the nation—and G.E.—gained from small business skills

The six small business firms shown here, with their manpower, skills and equipment, are representative of the more than 17,000 subcontractors and suppliers (for example, on jet engines 80% of them small businesses) who have teamed with General Electric in the production of defense equipment during the past five years.

Their record is enviable.

Often required to produce parts of extremely close tolerances and deliver in shorter-than-possible time, many of these small businesses have more than met their obligations. In terms of vital time saved and the consequent speed-up of defense production, their contribution has been of incalculable value to the defense effort.

What these typical firms and many others like them have done, teamed with General Electric, they may be able to do for you.

649-1

### Can Small Business Help You?



Thousands of small businesses, like the six illustrated here, have furnished General Electric with practically every kind of skill and service as defense subcontractors and suppliers.

Many of these companies have available production capacity, created in large part by the reduction of defense orders since the Korean War peak. This means that they may be able to apply their skills to help you with your production.

If you have a manufacturing problem or have work available for subcontracting, please write us on your letterhead stating in as much detail as possible the type of services or skills you require. We will be glad to suggest several small businesses who have done similar work for us and may be able to help you.

Write to C. W. Bryant, Manufacturing Services Division, General Electric Co., 570 Lexington Ave., New York 22, N. Y.

*Progress Is Our Most Important Product*

**GENERAL  ELECTRIC**



## **GRAVER** Fabricates All-Welded Revolving Frames for **P&H** Power Shovels

The versatile P&H Dragline pictured above, feeding rock onto a conveyor (Model 1055 LC) uses an all-welded revolving frame for extra strength. Graver recently fabricated five such assemblies for the Harnischfeger Corporation, one of which is shown in the inset.

This is an integrally welded rigid unit of box section design to withstand the great variety of stresses it will encounter. Traditional Graver quality is seen in the uniform welds which were inspected during manufacture by the most modern and comprehensive techniques. These include the initial accurate dimensional inspection on specially designed layout tables, periodic visual inspections, and magnetic particle and X-ray inspections.

Graver has achieved a reputation for developing new equipment and advanced techniques and is expert in welding carbon and stainless steels, and aluminum. For the more complex, difficult welding problems consult your Graver engineering representative. Meanwhile write for new illustrated brochure, "WELDMENTS."



### **GRAVER TANK & MFG. CO., INC.**

East Chicago, Indiana

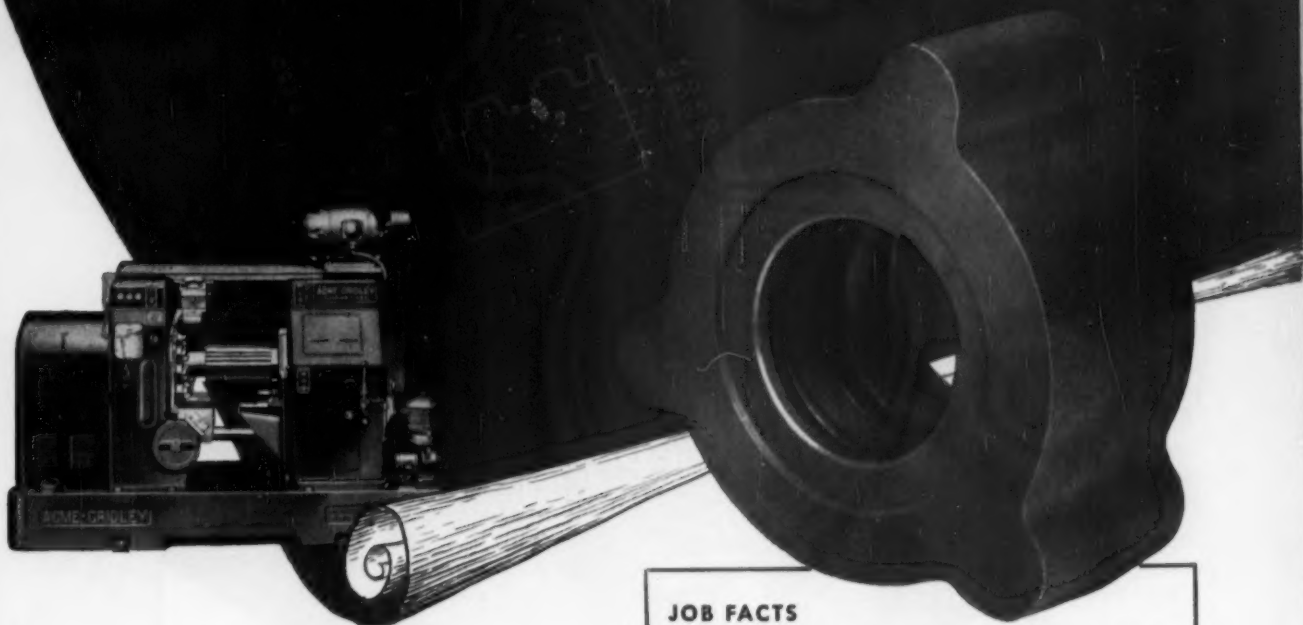
CHICAGO • NEW YORK • PHILADELPHIA • EDGE MOOR, DEL. • CATASAU-  
GUA, PA. • PITTSBURGH • CLEVELAND • DETROIT • TULSA • SAND SPRING,  
OKLA. • HOUSTON • ODESSA, TEXAS • CASPER, WYO. • LOS ANGELES  
FONTANA, CAL. • SAN FRANCISCO

**GRAVER** ...source for  
quality weldments

# HOW TO COMPLETE THE JOB *Faster...*

AND STILL GET

## MORE ACCURATE PARTS!



When you tool up jobs this way on an ACME-GRIDLEY MULTIPLE SPINDLE CHUCKING AUTOMATIC, you often *complete* the parts in one setup—and they are more accurate and uniform because rehandling and rechucking for second operation work is eliminated.

And the corollary to this is that man hours are released for other work—and space formerly needed for second operation work is saved.

On this cast iron housing, all 17 operations were performed simultaneously, with a *single completely carbide-tooled setup*—on an Acme-Gridley 8-inch, 8-spindle chucker. And because the work on all spindles is always done within the time required for the longest single cut, the floor-to-floor time on this job was at the rate of 61 *completed* pieces per hour.

This is where multiple spindle *planning* pays off.

### JOB FACTS

- Roughing and finishing operations performed on this SAE 120-121 Cast Iron Housing include multiple recessing shown in sketch. The three grooves were rough recessed in one station and finished recessed together with front and rear counterbore in another position.
- Three rough boring passes were finish-reamed with accelerated reaming attachment in one pass.
- Carbide tooling used throughout.

And this is where the vast experience of National Acme tooling engineers (they have helped plan the cost-reduction of more than 300,000 jobs) wins and holds preference for Acme-Gridley bar and chucking automatics—in hundreds of shops.

These engineers will give you sound advice; unbiased advice in both job setup and equipment—from the world's only manufacturer of a *complete line* of multiple spindle bar and chucking automatics and fully automatic turret lathes.

Send for Catalog CM-51 or ask for our recommendations

FIND US AT THE MACHINE TOOL SHOW • SEPTEMBER 6 TO 17 • BOOTH NUMBERS 324 AND 781



OUR JOB: to provide the *Right Machine* for YOUR JOB

## THE NATIONAL ACME COMPANY

175 EAST 131st STREET • CLEVELAND 8, OHIO



Acme-Gridley 4, 6 and 8 Spindle Automatic Bar and Chucking Machines • Fully Automatic Turret Lathes (Bar and Chuck Type) • Hydraulic Thread Rolling Machines • Automatic Threading Tools • Switches • Solenoids • Control Manufacturing.

*At the Show...*

**See  
Stainless Bored  
at Better than  
7" per Minute!**

*on the New LeBlond-Carlstedt  
Rapid Borer*





**W**ith the new LeBlond-Carlstedt Rapid Borer, you can bore, trepan or counter-bore holes 3 to 8 times faster than by the conventional D-bit method! We'll prove this at the Machine Tool Show. You'll see a 1 1/4" hole bored in solid Stainless 303 at better than 7" per minute. We'll bore 4140, C-1141 and 6150 even faster!

The Rapid Borer was developed expressly to accommodate revolutionary new tooling which cuts at very high speed with excellent accuracy and finish. Cutting oil is forced between the boring bar and hole wall forming a continuous bearing. It flushes back through a hole in the boring head and bar, carrying away the chips as it goes. Chip form is controlled both by tool angles and proper feed and speed combinations; thus tool faces are kept clean and chip passage clear. Cutter design produces balanced cutting pressures thereby controlling concentricity.

This new tooling requires a machine with the following characteristics, all of which are incorporated in the Rapid Borer's design:

*High spindle horsepower*

*Ample rigidity throughout*

*Complete absence of vibration at all speeds*

*Infinitely-variable feeds (up to 38" per minute), independent of speeds, while running under load*

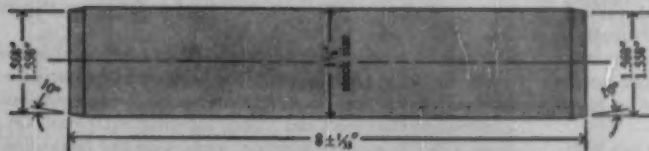
*Final drive to spindle through belts*

*Large volume of cutting oil*

Basically, the Rapid Borer is suited to work that is symmetrical for balance in rotation—round, square, octagonal, tapered or stepped. A wide variety of hole diameters and depths as well as work sizes can be accommodated.

Tell us about the holes you'd like to produce faster. Large holes or small. If the Rapid Borer can handle the job, we'll show you how to produce them faster than ever before.

*Like to see your own materials bored at the show?*



Just prepare sample bars of the materials you are now boring, or intend to bore. Make them according to the drawing here. Bring them to the Show and we'll bore them for you on the Rapid Borer.



See it at the show. No. 1313—dead center of the new exhibition hall.

*...cut with confidence*

**The R.K. LeBlond Machine Tool Company**

Cincinnati 8, Ohio

*World's largest builder of  
a complete line of lathes for  
more than 68 years*





## WHAT—HANDLES LIKE CARBON STEEL?

**That's right. 3 times stronger than carbon steel, Lukens "T-1" steel can be welded without preheating or special joint design.**

Although Lukens "T-1" steel is a tough, high strength, heat treated steel, equipment builders will find that the techniques of working with this new steel are no different than with carbon steel. Recognizing that higher strength steels require higher pressures to form, proper design procedures will permit this low carbon, quenched and tempered alloy plate steel to be fabricated not only in the shop but also in the field. Those items of equipment which may not have to be stress relieved for dimensional stability or other special reasons can be fabricated of Lukens "T-1" steel to take advantage of its tough "as-welded" characteristics.

In addition to easy fabrication, Lukens "T-1" steel has other benefits of equal value to equipment builders. Three times stronger than carbon steel, this new steel has lighter weight and reduced thickness in comparison to heavier, thicker plates of carbon steel, thereby reducing material, fabrication and shipping costs. Lukens "T-1"

steel's excellent resistance to the combination of wear and impact abuse lowers maintenance and replacement costs, lengthens equipment life. Lukens' range of steel plate sizes—including the widest and heaviest plates available anywhere—makes possible additional savings for builders through the use of wider plates that require fewer welded seams.

A new addition to Lukens' complete line of carbon, alloy and clad steels, this new steel's unusual combination of properties suit it especially to applications in pressure vessels, bridges, shipbuilding, construction machinery and general industrial equipment. On problems of design, material selection, application and fabrication techniques, Lukens offers full technical assistance. If you would like further information on Lukens "T-1" steel, write for Bulletin 765. Address: Manager, Marketing Service, 772 Lukens Building, Lukens Steel Company, Coatesville, Pa.



## "T-1" STEEL

THE NEWEST IN A COMPLETE LINE OF ALLOY STEELS

LUKENS STEEL COMPANY, COATESVILLE, PENNSYLVANIA

USE

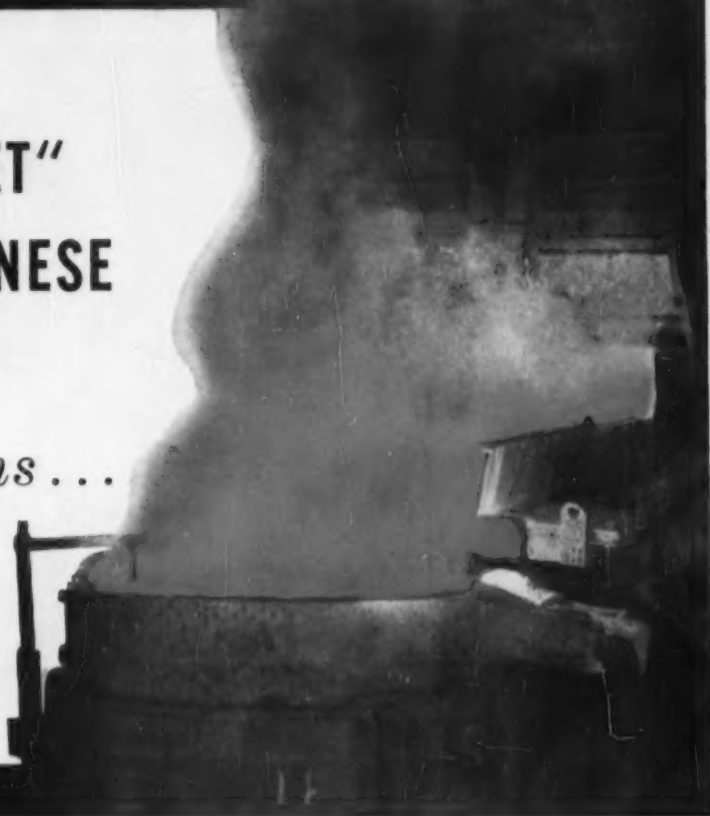
**"ELECTROMET"**

Trade-Mark

**SILICOMANGANESE**

*for fast, easy  
ladle additions...*

combination alloy  
dissolves fast and  
reduces chilling of  
the steel



*Check these Advantages*

**COMBINATION ALLOY**

In making steel, silicon and manganese are much more effective in combination than when used separately. ELECTROMET silicomanganese is designed for the simultaneous addition of silicon and manganese in the correct proportion.

**FAST SOLUBILITY**

Because of the concentration of active elements in ELECTROMET silicomanganese, less time is required for solution in molten steel than when equivalent amounts of silicon and manganese are used separately in the form of ferrosilicon and ferromanganese.

**LESS CHILL**

The weight of silicomanganese is less than the weight of equivalent amounts of ferrosilicon and ferromanganese. The chilling effect is less with the lower weight of the silicomanganese addition.

**LOW CARBON CONTENT**

When ELECTROMET silicomanganese is added in the ladle, the low carbon content of the alloy allows the melt to be tapped at a higher carbon level with a saving in furnace time.

**DEOXIDIZER FOR SEMI-KILLED STEELS**

ELECTROMET silicomanganese is particularly effective as a ladle addition for the deoxidation of semi-killed steels.

**METALLURGICAL SERVICE AVAILABLE**

Our metallurgists will be glad to assist you in the application of ELECTROMET silicomanganese to your specific requirements. For further information, please get in touch with the nearest ELECTROMET office.

**ELECTRO METALLURGICAL COMPANY**

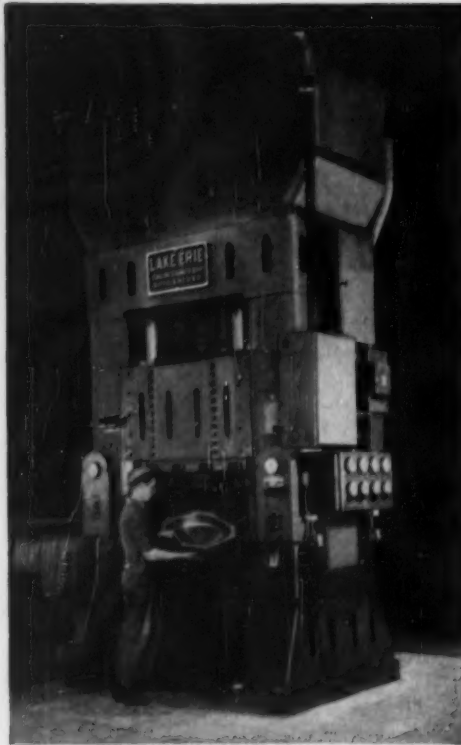
A Division of Union Carbide and Carbon Corporation  
30 East 42nd Street **UDC** New York 17, N. Y.

OFFICES: Birmingham • Chicago • Cleveland • Detroit  
Houston • Los Angeles • New York • Pittsburgh • San Francisco

In Canada: Electro Metallurgical Company, Division  
of Union Carbide Canada Limited, Welland, Ontario

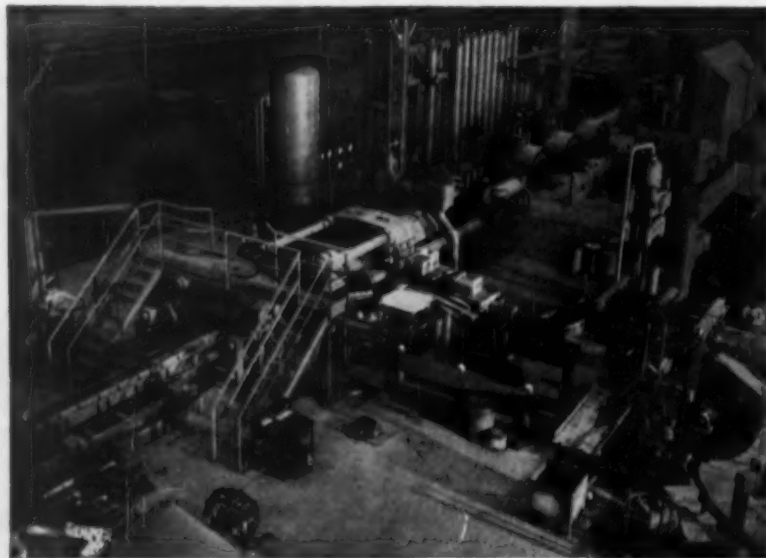
The term "Electromet" is a registered trade-mark of Union Carbide and Carbon Corporation.

September 1, 1955



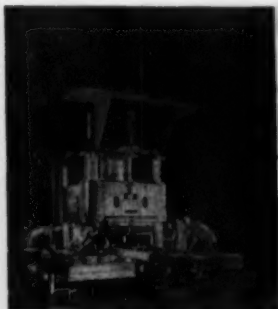
**DRAWING**

From a single press to a packaged installation . . .

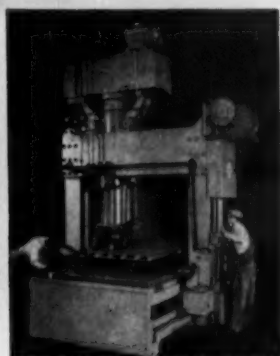


**PACKAGED INSTALLATIONS**





**RUBBER PAD FORMING**



**STRAIGHTENING**



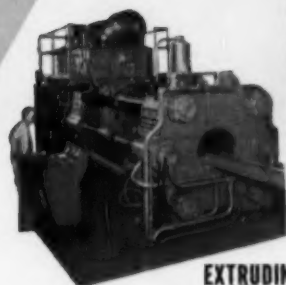
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**PLATE BENDING**



**BULLDOZING**



**EXTRUDING**

## LAKE ERIE MAKES THEM ALL

More than 3,500 developed designs of hydraulic presses to meet every pressing requirement are immediately available to you at Lake Erie. Make it a practice to consult Lake Erie about your hydraulic press needs.

(Leasing and deferred payment plans tailored to your exact needs.)



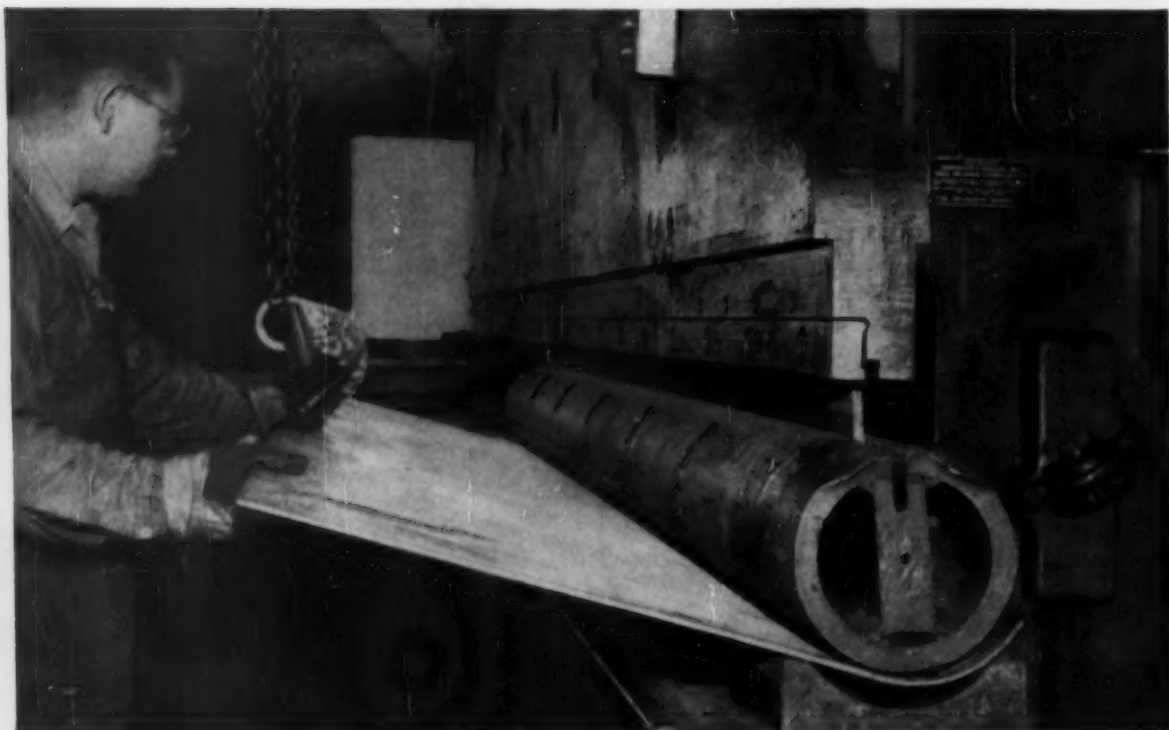
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HANDY  
BUYER'S  
GUIDE** ➔



**EXTRUSION PRESSES • DIE CASTING MACHINES  
ROLLING MILL AUXILIARY EQUIPMENT**

**LAKE ERIE ENGINEERING CORP.** General Offices and Plant: 368 Woodward Ave., Buffalo 17, N.Y.  
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LAKE ERIE®



Monel sheet makes possible economical covered rolls for continuous picklers. Youngstown Welding & Engineering

Company, Youngstown, Ohio, specializes in fabricating these rolls—has a patented process for covering them.

*Take it from Youngstown...*

## Monel covered rolls have what it takes for continuous pickling

What do you want in a roll for your continuous pickling line?

Economy and corrosion resistance!

Youngstown Welding & Engineering Company has such a roll—a *covered* roll that fits both requirements.

It has a tough surface of Monel\* nickel-copper alloy. And beneath is a low cost, low-alloy body. This low-alloy body saves you money. And the easy workability of Monel nickel-copper alloy enables Youngstown to pass on substantial *plus* savings to you.

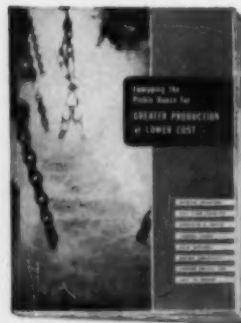
What about corrosion resistance?

\*Registered Trade Mark

The Monel surface on these rolls is highly resistant to corrosion by the common types of pickling solutions. Monel resists wear and abrasion, too. The covered rolls start smooth and stay smooth—don't harm the surface of steel strip or tin plate on pickling lines.

Do you purchase pickling equipment? Or do you fabricate it? Either way, you'll get corrosion- and wear-resistance like this from Monel. It assures you of the combination of economy and long service life you want.

**The International Nickel Company, Inc.**  
67 Wall Street New York 5, N. Y.



### Booklet shows how others reduce pickling costs

See how Monel helps others reduce pickling costs and increase production. Inco's new 32-page booklet, "Equipping the Pickle House", gives you practical information on pickling most products—from small parts to billets, blooms, and plate. Dozens of illustrations. Write for a copy today.

**Monel**... for pickling equipment



★  
World's largest ladle of  
world's largest cranes  
★

# ALLIANCE

## PLAYS A VITAL ROLE



### 450/75/20-TON, 4-GIRDER LADLE CRANES

When the engineers from the Construction Engineering Bureau of the United States Steel Corporation were in the market for the world's largest ladle cranes for Fairless Works, they consulted The Alliance Machine Company, whose experience and know-how qualified them for this important task.

One of the cranes Alliance designed, which is now operating in the Fairless Works, is this 450-ton ladle crane. Having a 69'6" span, this crane is equipped with a 2-motor, synchronized worm drive and double-drum interlocked type main hoist. The synchronizing shaft employed in the gearing scheme not only elimi-

nates undesirable ratchet gears, but makes possible an additional safety feature in case one hoist motor fails. Under this condition, both worms are driven by the remaining motor. All gearing functions continue as though operated with two motors. In case of hoist motor failure on the conventional drive without the synchronizing shaft, hoisting is accomplished by only one set of gears, thus imposing a double load on active gearings, as the second drum is then driven through interlocking drum gears.

Hoist gearing is so proportioned that full crane capacity can be lifted by one motor without exceeding the quarter-hour rating.

Drum gears and pinions of the main hoist have precision-cut, single-helical teeth. This feature, in cooperation with the worm drive, provides vibrationless operation on either high- or low-speed hoisting and lowering.

All gears of this new Fairless Works crane are fully enclosed and operate in a bath of oil, assuring long life and low maintenance. The 4-part safety rope system affords the highest degree of safety in rope reeving.

This crane is equipped with a 5-story cab, the operator's compartment being air-conditioned.

Consult Alliance Machine Company engineers when you have a heavy material handling problem.

★ ★

**THE Alliance MACHINE COMPANY**

MAIN OFFICE PITTSBURGH OFFICE

ALLIANCE, OHIO • 1622 OLIVER BUILDING, PITTSBURGH, PA.

# Announced in April, Alcoa's Labeling Program Is Already in High Gear

**HUNDREDS OF MANUFACTURERS HAVE SIGNED  
THE ALCOA LABELING AGREEMENT TO GIVE  
THEIR PRODUCTS THIS NATIONAL MARKETING AID**

*As this advertisement goes to press,  
manufacturers in the following  
product classifications have signed  
the Alcoa Labeling Agreement!*

Air Diffusers  
Architectural Parts  
Auto Safety Belts  
Awnings  
Baby Articles  
Baths  
Bathtub Anchors  
Beds  
Bearings  
Bird Baths  
Boat Masts  
Boats  
Boat Tops  
Builders' Hardware  
Canoes  
Capacitors  
Carpenter Squares

Carrying Cases  
Carts  
Clamps  
Coat Hangers  
Cooking Utensils  
Cord Winders  
Crate Boxes  
Display Racks  
Diving Boards  
Dock Plates  
Door Closers  
Doors & Frames  
Enseals  
Electric Equipment  
Electric Meter Cases  
Electric Tools  
Engine Bearings

Fans  
Farm Gates  
Fencing  
Fishing Equipment  
Floor Brushes  
Flower Holders  
Food Cabinets & Racks  
Furnace Pipe & Fittings  
Furniture  
Golf Carts  
Greenhouses  
House Trailers  
Ice Chests  
Ice-Cream Dippers  
Insect Screening  
Insulation  
Jalousies  
Ladders  
Lawn Mowers  
Leg Bands (poultry)  
Leveling Tools  
Lighting Standards  
Lightning-Rod Cable  
Litho Sheet  
Luggage

Luggage Racks  
Medicine Cabinets  
Metal Paste  
Movie Screens  
Newspaper Racks  
Packaging  
Paints  
Panels  
Pasteurizers  
Pike Poles  
Pitchers  
Portable Ice Chests  
Poster Trim  
Propellers  
Refrigerators  
Roof Coatings  
Sander-Polishers  
Sash  
Scaffolds  
Screening  
Shipping Containers  
Shower Doors  
Siding  
Signs  
Siphon Tubes

Sliding Doors  
Sprayers  
Stadia Beds  
Steak Platters  
Steam Irons  
Storm Windows & Doors  
Strollers  
Surgical Supplies  
Tent Poles  
Textile Equipment  
Thresholds  
Tile  
Trailers  
Truck Bodies  
Tumbler Sets  
TV Antennas  
Valves  
Vapor Barrier  
Vulcanizing  
Clamps Trim  
Wall Panels  
Water Heaters  
Weatherstrip  
Windows  
Zippers

Signing the Alcoa Labeling Agreement enables these Alcoa customers to use the powerful Alcoa name in conjunction with their own. The Alcoa label on their product or package tells distributors, dealers and customers that here is aluminum value—that they are users of aluminum backed by 67 years of knowhow. Thus, they share in the 400,000,000 impressions of the Alcoa label that will appear in national magazines and on television in 1955.

The accumulated recognition of the Alcoa name, which for 67 years has stood for the finest in aluminum, is available to Alcoa customers with their use of the Alcoa label. Complete plans and detailed advantages of its use are available from your local Alcoa sales engineer. The Alcoa office nearest you is listed under "Aluminum" in your classified phone book. ALUMINUM COMPANY OF AMERICA, 875-J Alcoa Building, Pittsburgh 19, Pa.



**Alcoa's Development Division—to aid you  
in profitable use of aluminum.**

**Alcoa's Labeling Program—to help you market  
the fine products that result.**





## BIGGEST ALUMINUM NEWS OF THE YEAR ... New Alcoa Label, Your Guide to Aluminum Value in Scores of Products!

You know by now that Alcoa® Aluminum—the modern metal—is widely used by leading manufacturers to make scores of light, lasting products for better living—from cars to candlesticks.

You know, too, something of the extra qualities offered you by manufacturers who use carefree, corrosion-resistant aluminum. Maybe you've wondered, "How can I be sure I'm getting aluminum value in a product I buy for my home or personal use?"

Soon, millions of these colorful labels will give you the answer.

Manufacturers who use our metal will be using these labels on screen and storm windows, furniture, housewares, cookware . . . guiding you to aluminum value. On whatever product you see it, the Alcoa label tells you, "Here is metal with a pedigree, born in Alcoa Research, chosen by a manufacturer who wants to give you your money's worth in aluminum value."

ALUMINUM COMPANY OF AMERICA,  
875-J Alcoa Building, Pittsburgh  
19, Pennsylvania.

**Your Guide to Aluminum Value**



© 1955, Aluminum Company of America

**SOON—Manufacturers of These  
Products Will Be Using the  
Alcoa Label as Your Guide  
to Aluminum Value**



MANUFACTURERS of residential building products like awnings, combination screen and storm doors and windows, gutters and downspouts eliminate painting and upkeep with Alcoa Aluminum.



OUTDOOR furniture of Alcoa Aluminum is unaffected by weather, requires no painting, is easy to move and practical for indoor use when winter comes.



HOUSEWARES departments of your favorite stores are showing cookware, wastebaskets, step-stools, tumbler sets, and dozens of other attractive, lasting aids to carefree aluminum living.

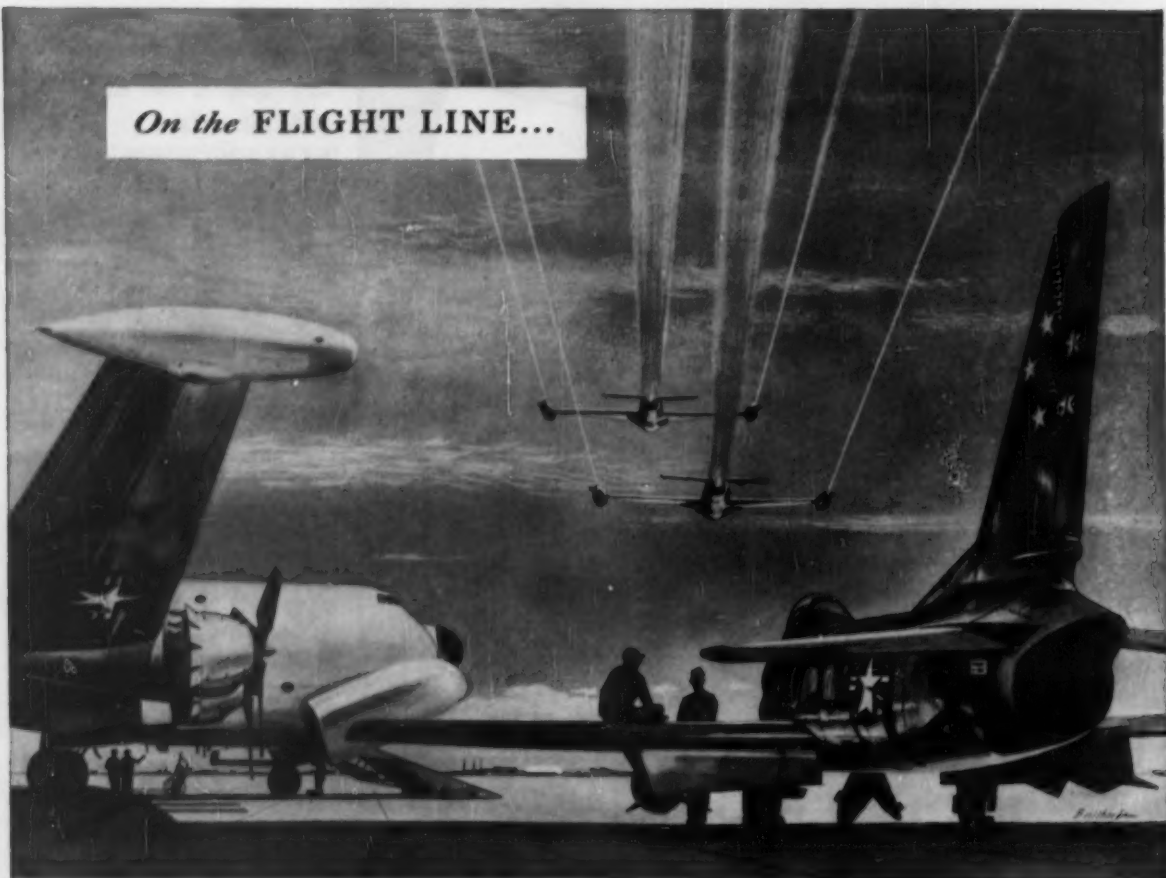


FOR SUMMER FUN, choose a light, strong boat, outboard motor, and camping, picnicking and barbecue equipment of Alcoa Aluminum.

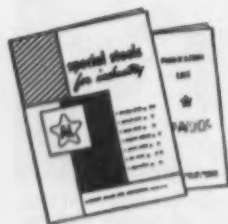


INDUSTRIAL PRODUCTS like truck and trailer bodies, truck wheels, electrical and building products use Alcoa Aluminum for high performance at low cost.

On the FLIGHT LINE...



## FIRST COST *can be the* LEAST COST *if it's the* LAST COST



### WRITE TODAY For These Publications

1. SPECIAL STEELS FOR INDUSTRY . . . 16 pages of essential data on the proper selection and application of principal AL special alloy products: stainless, tool and electrical steels and sintered carbides.

2. PUBLICATION LIST . . . a complete listing of all AL publications, both technical and nontechnical (over 100 in all), with a handy order form for your convenience.

ADDRESS DEPT. A-69

★ ★ ★ ★ The Allegheny stainless and super high-temperature steels used in jet and rocket aircraft engines and equipment are pure economy, because they do the job that's required of them, and they *last*! They stand up under metal-killing conditions of heat, load and corrosion, and they're dependable.

There are lots of other jobs for stainless steel that aren't as spectacular, or perhaps as tough, as those aboard a jet. Like, for example, in hospital or kitchen equipment—or in cars, trains, appliances, buildings,

etc. But, in these and thousands of other cases, stainless again gets the call. And usually, it's for the same big reason . . . because it not only does the job better, but lasts longer and costs less in the long run than any other material on the market.

And that brings up this question: where can Allegheny Stainless help *you* either to make money, or to save it? If you have a product or equipment problem, call us in . . . let our Engineering and Research Staff lend a hand. *Allegheny Ludlum Steel Corporation, Oliver Bldg., Pittsburgh 22, Pa.*

WAO 5509 B

Make it BETTER-and LONGER LASTING-with

# AL Stainless Steel

Warehouse stocks carried by all Ryerson Steel plants



Machines too,  
develop through

EVOLUTION



### LEES-BRADNER

*Proudly announces the latest  
developments in the model 7 type HD  
high speed production hobbing machine*

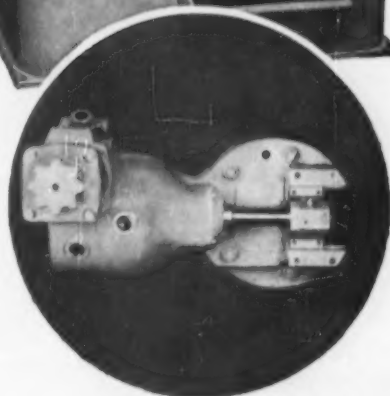
Just as given species improve, giving way to the constant press of nature, so do machines change and improve with the ever-increasing demands of industry.

The Lees-Bradner 7 HD Single Spindle Hobber is a good example. It has moved forward in engineering and design improvements to meet today's and tomorrow's production demands.

Pioneers in high speed hobbing, The Lees-Bradner Company has, through constant experimentation, created a hobbing machine far superior to its prototype. The new Model 7 Type HD Single Spindle Hobbing Machine offers industry a heavier and faster machine. Weighing approximately 1,000 lbs. more than its predecessor, it has a heavier headstock, heavier column, 10 H. P. motor and 2 H. P. rapid traverse motor.

Designed-in improvements such as these give industry savings in time and labor while meeting today's production demands . . . plus the extra capacity for tomorrow's requirements.

Demonstrations may be arranged on request. Contact your Lees-Bradner representative, or write us direct. No obligation, of course.



The above photographic close-up shows the new, heavier hob head with Timken bearing construction and 3-inch hob shift and new outer support.

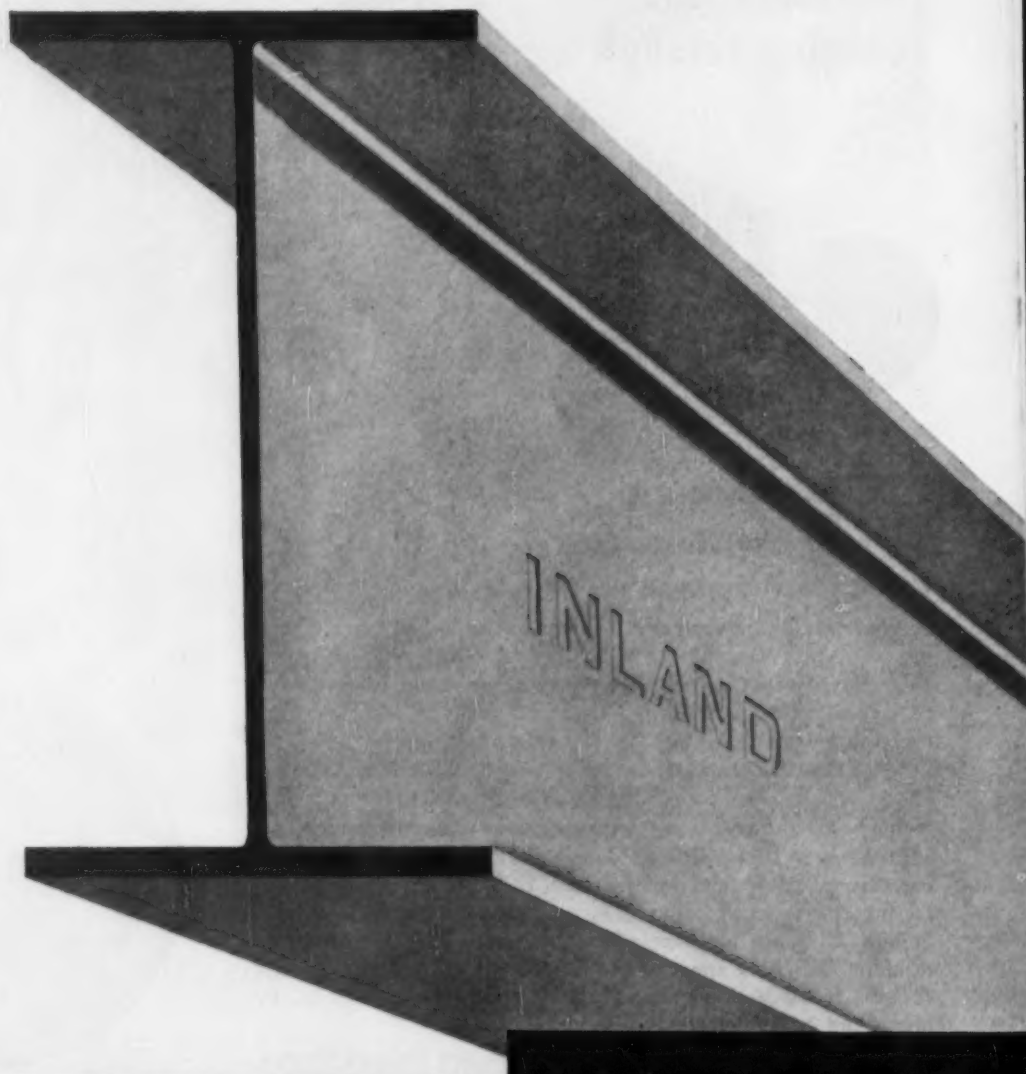
*The* **LEES-BRADNER** *Company*


CLEVELAND 11, OHIO, U.S.A.



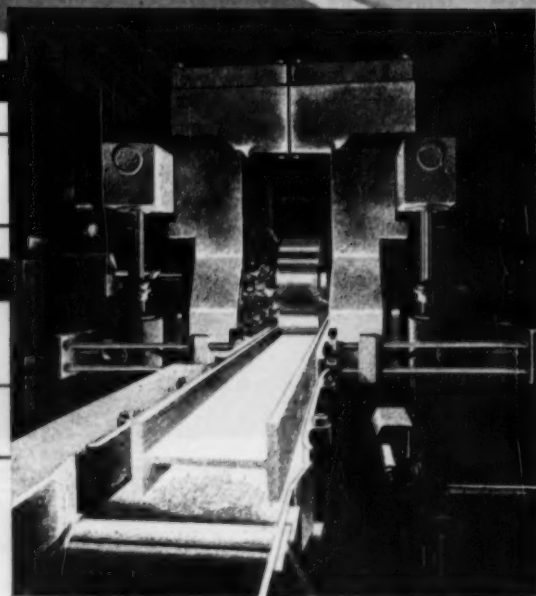
MODEL 8 HOBBER HY THREAD MILLER 7-A ROTARY HOBBER CRI-DAN THREADING MACHINES MODEL 40 THREAD MILLER SH SPLINE HOBBER 15-S HOBBER

IF YOU THREAD OR HOB . . . GET A BETTER JOB WITH A LEES-BRADNER



| INLAND WIDE FLANGE BEAMS  |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| WF Beams  | WF Light Beams  | WF Joists   |   |   |   |   |   |
|  |  |  |   |   |   |   |   |
| 8"—24"  | 10"—12"   | 10"—12"   |   |   |   |   |   |
| OTHER INLAND STANDARD STRUCTURAL SECTIONS   |   |   |   |   |   |   |   |
| American Standard Beams   | H-Beams   | American Standard Channels  | Equal Angles  | Unequal Angles  | Zees  | Ship and Car Building Channels  | Bulb Angles   |
|  |  |  |  |  |  |  |  |

Inland's new WF universal type structural mill is designed specifically for rolling parallel flange type beams.



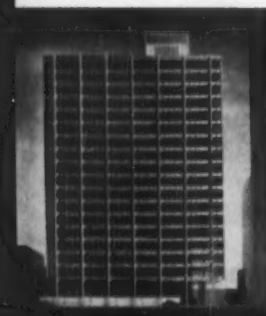


# a dependable new source for **WIDE FLANGE BEAMS**

Rolling soon from Inland's new Wide Flange structural mill . . . a wide range of parallel flange beams to meet the expanding needs of the Midwest construction industry.

Far stronger and lighter than standard beams, Wide Flange Beams save from 8% to 35% in weight alone and make possible longer spans with fewer intermediate supports. An important feature of the Inland Wide Flange Beam: the inside flanges are not tapered, thus permitting easily made connections.

You'll find many welcome advantages in using Inland as your source for both Wide Flange and standard structurals. Our strategic central location, fully integrated manufacturing operation and long experience working with the construction industry, assures you of dependable service. Talk over your requirements with your Inland representative now.



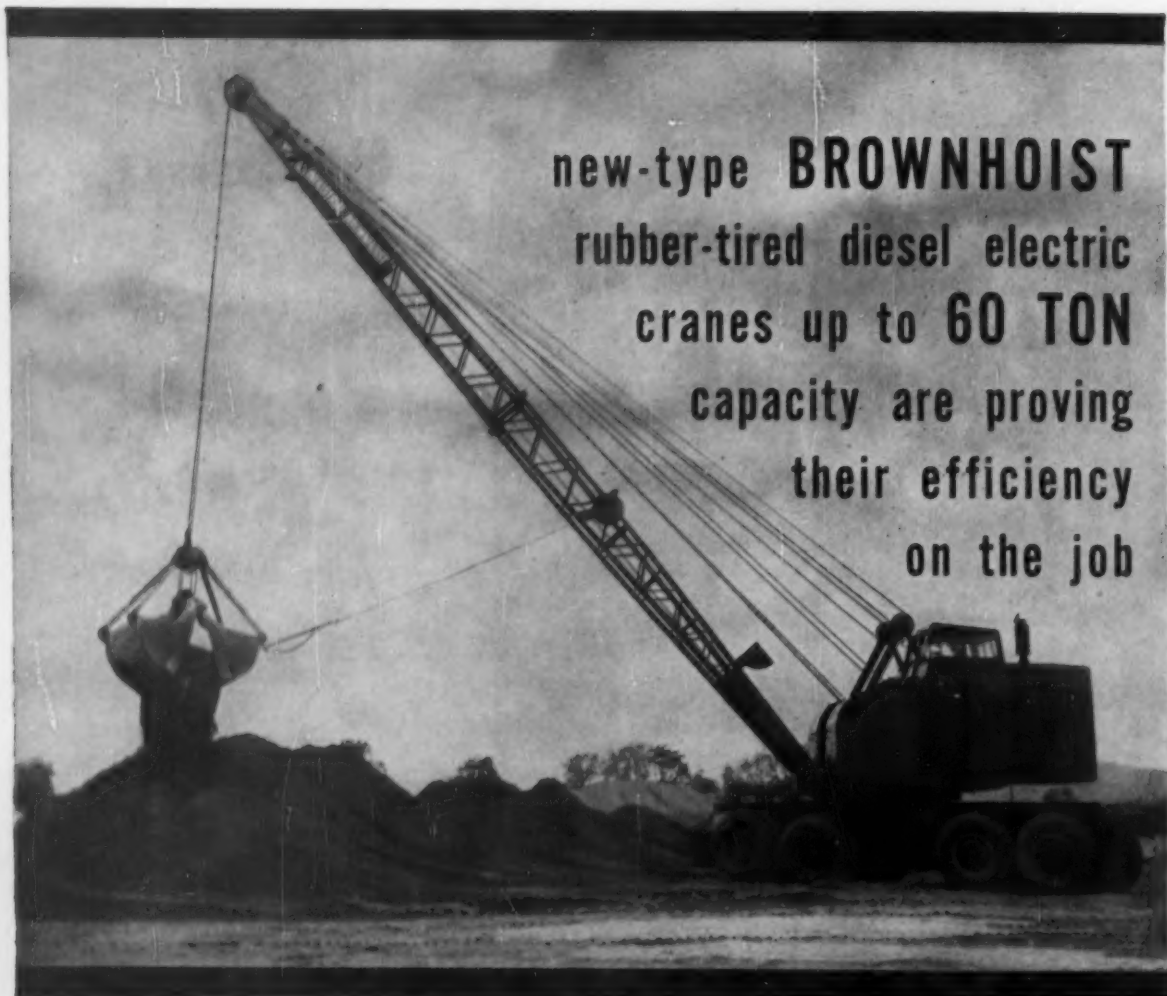
We have a new booklet that gives detailed description of all sizes rolled and helpful information on Wide Flange Beams. Write for your free copy.



## **STEEL COMPANY**

38 SOUTH DEARBORN STREET • CHICAGO 3, ILL. MOIS

Sales Offices: Chicago • Milwaukee • St. Paul • Davenport  
St. Louis • Kansas City • Indianapolis • Cincinnati • New York



new-type **BROWNHOIST**  
rubber-tired diesel electric  
cranes up to **60 TON**  
capacity are proving  
their efficiency  
on the job

103

**BROWNHOIST MATERIAL  
HANDLING EQUIPMENT  
GIVES A LIFT TO  
AMERICAN INDUSTRY**



**INDUSTRIAL BROWNHOIST CORPORATION**  
**BAY CITY, MICHIGAN** • DISTRICT OFFICES:  
New York, Philadelphia, Cleveland, Chicago, Denver,  
San Francisco, Montreal • AGENCIES: Detroit,  
Birmingham, Houston

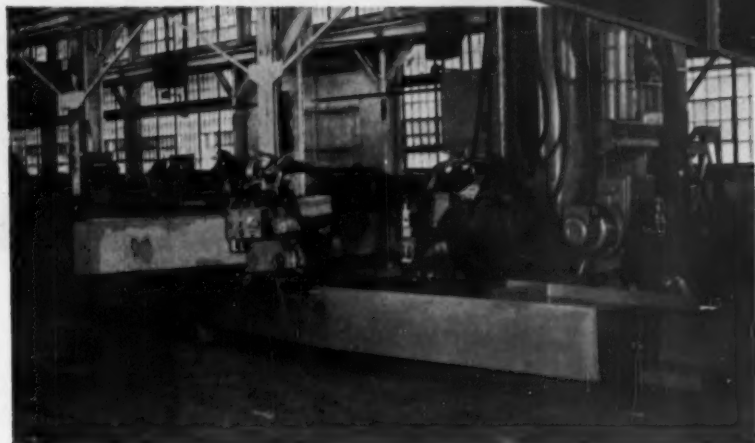
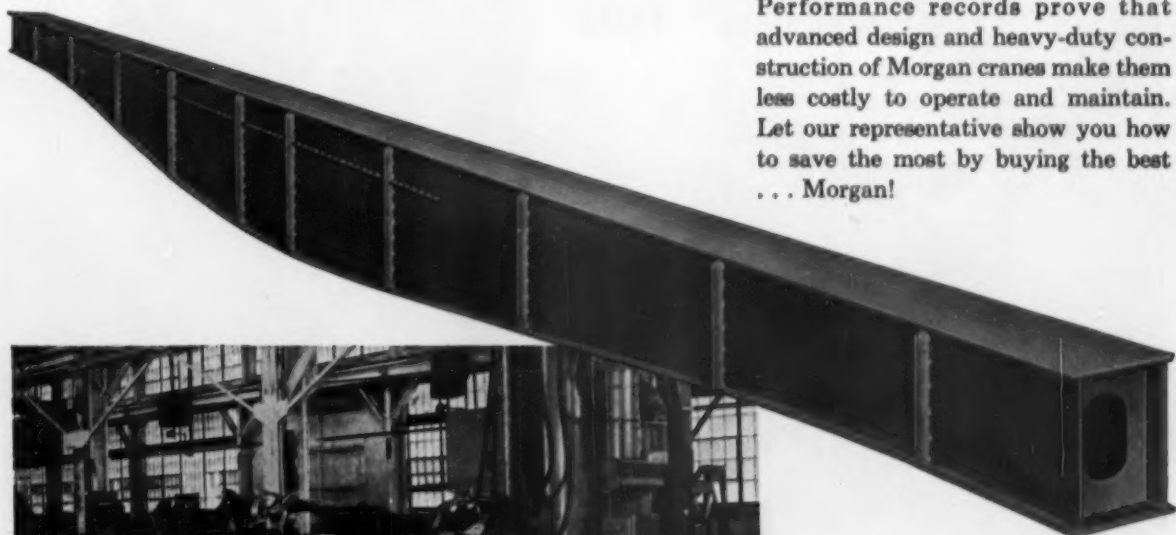
The new Brownhoist Wagon-Cranes are specifically designed to do an outstanding job wherever high mobility and high capacity are required. You'll see them at work performing heavy duty jobs in mines, quarries, steel mills, for railroad and lumber operations and for many other large industries. Equipped with dynamic clutch, anti-friction bearings at all essential points, power steering, electric travel and electric rotation. Mounted on a 12 wheel crane carrier capable of speeds up to 8 miles per hour, the unit can be operated by one man from easy-to-reach controls. Economical to operate. Available in capacities from 25 to 60 tons. For specification folder or further details, get in touch with our nearest representative or write us at Bay City.

SUBSIDIARY OF



# BROWNHOIST

**How Morgan cranes  
get a stiffer backbone  
...automatically**



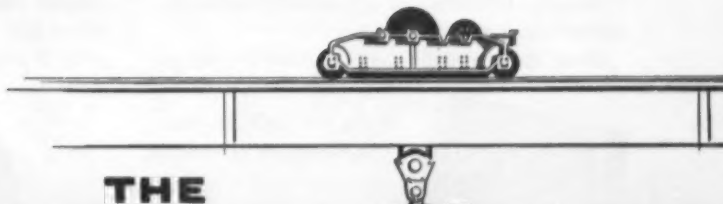
● MORGAN CRANES are stronger, more rigid . . . because girder joints and seams are welded automatically on the world's largest continuous welder. Casting imperfections and hand welding variables are eliminated with Morgan automatic welding. All joints are uniform and sound.

Crane drums, too, are welded automatically, making them stronger and lighter. Casting shrinkage voids are eliminated.

Morgan welders are qualified in accordance with A.S.M.E. and A.W.S. codes.

Performance records prove that advanced design and heavy-duty construction of Morgan cranes make them less costly to operate and maintain. Let our representative show you how to save the most by buying the best . . . Morgan!

*Perfect welding penetration is obtained with Morgan's 120" per minute automatic welder. Two welding heads float vertically and horizontally along the track.*



The Morgan Engineering Company manufactures overhead electric traveling cranes, gantry cranes, charging machines, plate mills, blooming mills, structural mills, shears and saws.

THE  
**MORGAN**  
ENGINEERING CO. *Alliance, Ohio*



## This company even saved money on Japan!

U.S. Steel Wire Spring Co. thought there must be a better way to bake japan on some small springs than the convection oven they were using. *There was.* Fostoria took a look at the operation and installed a *radiant* oven.

Now, they bake the same quantity of springs

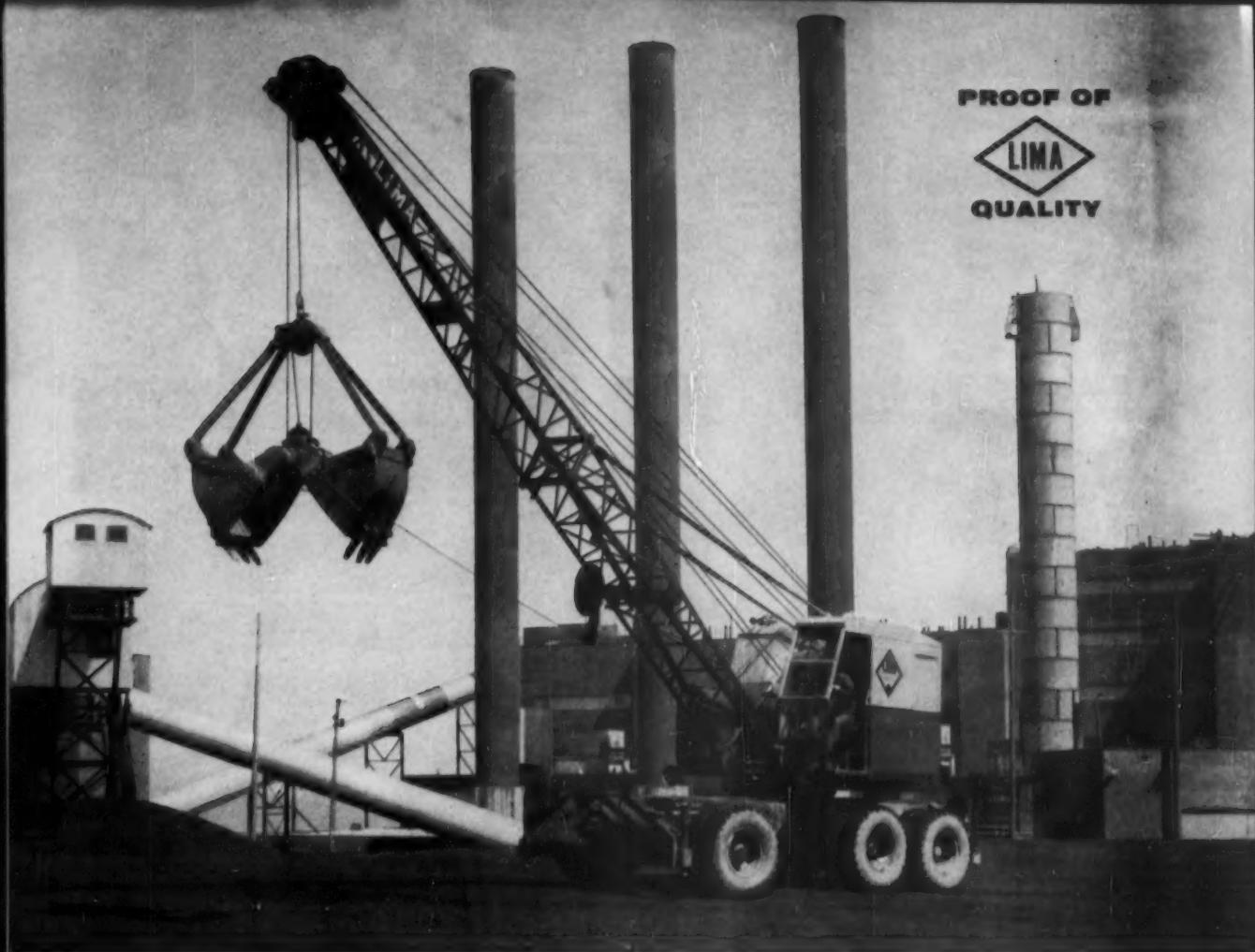
in *ten hours* that used to take *twenty-four*. They use a less expensive grade of japan, but they get a better finish. They saved floor space, time, and enough money to *more* than pay for the Fostoria oven. Let a Fostoria sales engineer look over your drying problem. Just drop us a line.



Write for **FREE** booklet  
"Applications Unlimited."







The Cleveland Electric Illuminating Company's Lima is shown working on the reserve coal pile at Eastlake. One of the world's most efficient plants,

Eastlake produces power for only  $\frac{1}{4}$  lb. of coal per kw. Completion of a fourth generator (right, above) will up plant capacity to 660,000 kw.

## The Cleveland Electric Illuminating Company finds wagon mounted LIMA excellent for outside materials handling!

The Cleveland Electric Illuminating Company has used a wagon mounted Lima Type 34 for outside materials handling at its Eastlake Power Plant for four years. They've found this quality-built Lima to be an excellent performer and have used it on a variety of jobs. They report:

"Our wagon mounted Lima is really mobile. We can move it quickly to any part of the plant where it's needed. In general materials handling work, it gives us smooth, fast lifts of all weights within its capacity. Simple, handy controls make the machine easy to operate, too.

"The Lima's ability to perform a wide variety of digging and lifting jobs is another big asset. By interchanging clamshell and hook on the boom, we've been able to use it for general construction work during

building of the Eastlake plant . . . coal handling . . . stock materials handling . . . laying tracks and ties for rail spurs . . . moving steel used in high wire work . . . and many other jobs. We've even used it to right trucks that have tipped over on our coal pile.

"In the four years our Lima has been at work, we've had no major maintenance downtime with it. Performance has been excellent."

Whatever *your* materials handling needs may be, it will pay you to check the complete line of wagon, truck or crawler mounted Limas . . . designed and built with the emphasis on quality to give *you* perfect performance on every job. See your nearby Lima distributor, or write Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD



**LIMA** SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

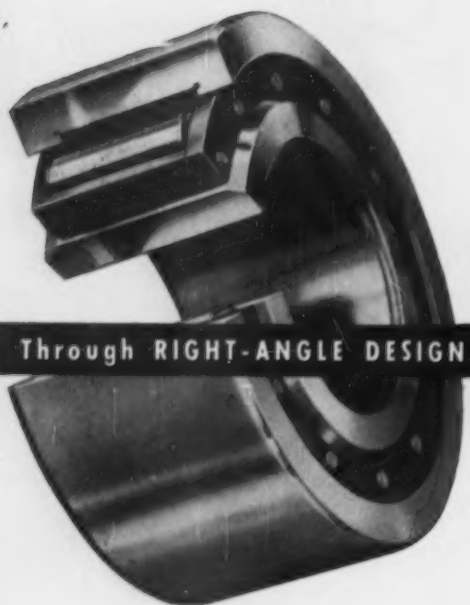
**BALDWIN-LIMA-HAMILTON**

Construction Equipment Division • LIMA • OHIO • U. S. A.

# Truer Rolling AND Longer Life...

Through RIGHT-ANGLE DESIGN.....

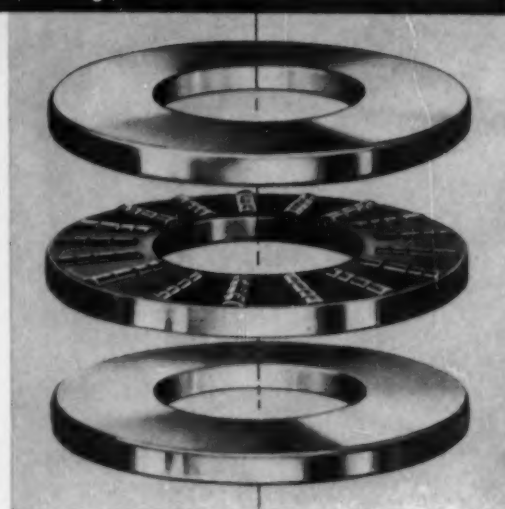
Through PRECISION-PARALLELISM



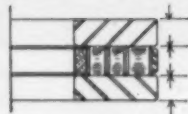
**RIGHT-ANGLE**  
Roller Ends, precisely square to avoid end-rub, oscillation and side-shock.

**RIGHT-ANGLE**  
Bearing Surfaces with parallelism that results in unswerving right-line rolling.

**RIGHT-ANGLE**  
Separator Slots accurately machined to prevent roller skew, slide and uneven wear.



**PRECISION-PARALLELISM**  
between rollers and matched thrust plates to preserve maximum capacity and eliminate Brinell effect.



**PRECISION-PARALLELISM**  
between rollers and machined separator slots to assure perfect alignments; minimize sliding friction and wear.

## ROLLWAY Radial and Thrust Cylindrical Roller Bearings

The advantages of Rollway's *right-angle design* and *precision parallelism* are readily apparent: Rubbing or sliding friction is negligible. Roller end-wear is practically nil. Starting torque is lower. Bearing life is extended. Shut-downs for bearing maintenance and replacement are fewer and farther apart.

Rollway's complete engineering and metallurgical services will gladly work with you on your problems. Simply write or wire any office. No cost. No obligation.

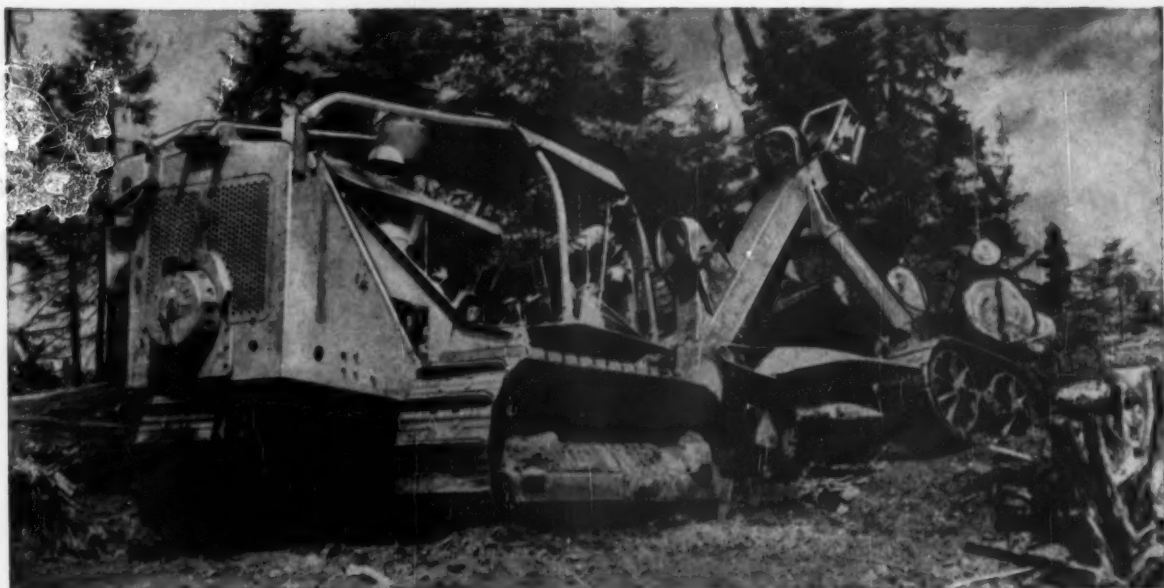
Rollway Bearing replacements are available through authorized distributors in principal cities. Consult your classified phone directory.

Rollway Bearing Company, Inc., Syracuse 4, N.Y.

# ROLLWAY BEARINGS

COMPLETE LINE OF RADIAL AND THRUST CYLINDRICAL ROLLER BEARINGS

ENGINEERING OFFICES: Syracuse • Boston • Chicago • Detroit • Toronto • Pittsburgh • Cleveland • Milwaukee • Seattle • Houston • Philadelphia • Los Angeles • San Francisco



## How UNIONMELT Welding Makes Tough Parts Tougher... Faster

UNIONMELT welding produces deep penetrating welds at top speeds, and is improving the production and quality of many parts used in rugged earth-moving equipment.

A 24 in. porosity-free circumferential seam, made by UNIONMELT welding in 62 sec., has eliminated oil leakage in sealed track rollers. Welds are made in 85 in. long track roller frames in only 5 minutes.

Another UNIONMELT welding setup used in the production of tractor wheels, makes two top-quality welds in one operation . . . A weld is made in a wheel hub at the same time the hub is welded to a 27 in. diameter rim.

UNIONMELT welding is particularly efficient in the fabrication of heavy materials because it—

- **Joins metal of any thickness**—in multiple passes. Metals up to 3 in. thick can be joined in one pass.
- **Means greater economy**—uses large diameter, low cost wire.
- **Uses a.c., d.c., or c.p. power supply**—with c.p. (constant potential) voltage is unchanged throughout welding—operations are fast and efficient.


Start saving now with UNIONMELT welding . . . Call your local LINDE representative for more information, and ask for a copy of Form 7942-A, "Modern Methods of Joining Metals."



UNIONMELT welding completes a contour weld in a bulldozer C-frame in an average speed of 17 in. per minute.



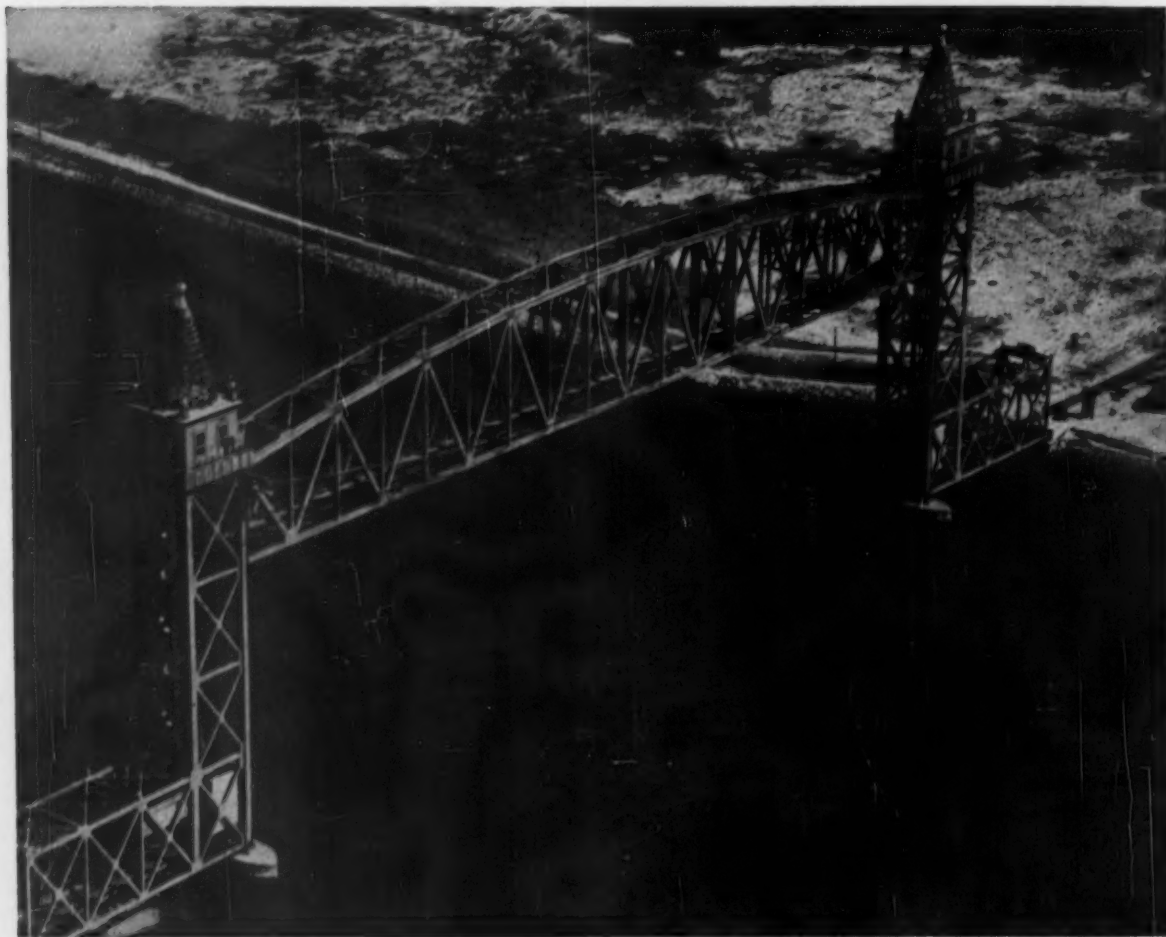
UNIONMELT welding eliminates leakage. A 24 in. circumference weld made in 62 sec. seals these grease-filled track rollers.

**Linde Air Products Company**  
A Division of Union Carbide and Carbon Corporation  
30 East 42nd Street  New York 17, N. Y.

Offices in Other Principal Cities  
In Canada: LINDE AIR PRODUCTS COMPANY  
Division of Union Carbide Canada Limited, Toronto  
(formerly Dominion Oxygen Company)

The terms "Linde" and "Unionmelt" are registered trade-marks of Union Carbide and Carbon Corporation.





*Cape Cod Canal Bridge, longest vertical lift bridge in the world.*

## Supported by **TORRINGTON BEARINGS...** Perfect performance for 20 years

The main sheave bearings now in their 20th year of service on the Cape Cod Canal Bridge—the world's longest vertical lift bridge—have given excellent, trouble-free service.

TORRINGTON's long experience in the highly specialized field of bridge bearings has made this performance possible and resulted in economy and precise control for a number of other bridge installations that include single- and double-leaf

bascule, retractable and floating spans.

TORRINGTON makes every basic type of anti-friction bearing including custom-made bearings for a wide variety of applications in heavy industrial equipment. Your TORRINGTON bearing engineer will be happy to select or help design the best bearing for your application. Call on him today.

THE TORRINGTON COMPANY  
South Bend 21, Ind. • Torrington, Conn.

*District offices and distributors in principal cities of United States and Canada*

## **TORRINGTON BEARINGS**

Spherical Roller • Tapered Roller • Cylindrical Roller • Needle • Ball • Needle Rollers

### **Prominent Bridges Equipped With TORRINGTON BEARINGS**

Cape Cod Canal Bridge,  
Buzzards Bay, Mass. .... 1935  
Torrence Avenue Bridge,  
Chicago, Ill. .... 1936  
Lewiston-Clarkston Bridge,  
Washington-Idaho Border ... 1939  
The Commodore Schuyler F. Helm  
Bridge, Los Angeles, Calif. .... 1947  
The Canal Street Bridge,  
Chicago, Ill. .... 1948  
North State Street Bridge,  
Chicago, Ill. .... 1949  
San Joaquin River Bridge,  
Mossdale, Calif. .... 1948  
Lake Washington Floating Bridge,  
Seattle, Wash. .... 1940

### **And These New Bridges Under Construction**

South Park Avenue Bridge,  
Buffalo, N. Y.  
Turtle River Bridge,  
Brunswick, Ga.



# Southwest's TALLEST Building by AMERICAN BRIDGE

Republic National Bank  
Building, Dallas, Texas

Architects: Harrison & Abramovitz; Gill & Harrell

Structural Engineers: Edwards & Hjarth

Structural Steel Fabrication and Erection: American Bridge



**D**EEP IN THE HEART OF TEXAS, looming high and handsome above an imposing skyline, the new 36-story home of the Republic National Bank of Dallas is the Southwest's tallest building.

Covering more than an acre of land in the center of the thriving metropolis, this \$25,000,000 building stands as another everlasting example of the strength and versatility of steel construction. 14,000 tons of structural steel went into its gigantic riveted frame—all of which was fabricated and erected by AMERICAN BRIDGE.

One of the interesting applications of the steel frame construction is the use of huge trusses in the bank wing's top story from which the floors above the main banking room are suspended, thus freeing the expansive, two-story main banking room of interior columns.

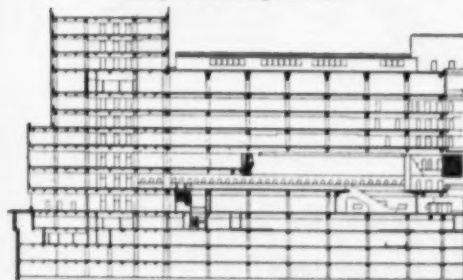
Your architect or consulting engineer can be relied upon to specify the type of construction best suited to your project. And AMERICAN BRIDGE has the experience, the equipment and technically skilled personnel to handle all types of steel construction with economy and dispatch — any time, anywhere. Our nearest office welcomes an opportunity to figure on your next job.

Right: Trusses on top floor of banking wing from which floors below are hung to free main banking room of columns. Below: cross section of banking wing showing 4-level underground parking floors and 2-story main banking room above ground floor.



AMERICAN BRIDGE DIVISION, UNITED STATES STEEL CORPORATION  
GENERAL OFFICES: 525 WILLIAM PENN PLACE, PITTSBURGH, PA.

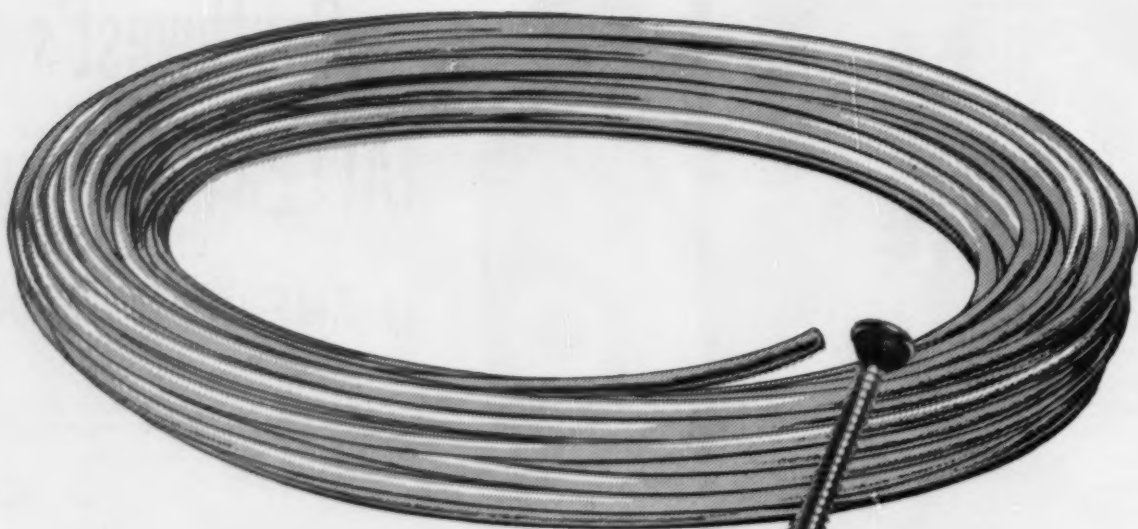
Contracting Offices in: AMBRIDGE • ATLANTA • BALTIMORE • BIRMINGHAM • BOSTON • CHICAGO • CINCINNATI • CLEVELAND  
DALLAS • DENVER • DETROIT • ELHIRA • GARY • MEMPHIS • MINNEAPOLIS • NEW YORK • PHILADELPHIA • PITTSBURGH  
PORTLAND, ORE. • ROANOKE • ST. LOUIS • SAN FRANCISCO • TRENTON • UNITED STATES STEEL EXPORT COMPANY, NEW YORK



## AMERICAN BRIDGE



UNITED STATES STEEL



*they grip tight...seal tight  
—they're made of*

## **CRUCIBLE** **stainless steel** **cold heading wire**

These *Tuff-Tite*® fasteners, made by Townsend Company, New Brighton, Pa., have a neoprene washer preassembled into the head. They stop leaks... hold tight even where there's severe vibration... seal out moisture effectively.

Of course high speed production of these fasteners, like other types of screws, bolts, rivets and pins, demands cold heading wire with optimum workability. That means wire that's structurally sound and metallurgically uniform... with sufficient ductility to make forming easy... and with good tensile strength.

*Crucible stainless steel cold heading wire* has all these qualities — *plus* exceptional corrosion-resistance. That's why Crucible Types 305 and 410 stainless are used for the new *Tuff-Tite* fasteners, as well as for many other types of fasteners.

Crucible will fill your stainless cold heading wire needs quickly and efficiently... in the grade and size that best fits your application. Talk over your production requirements with your Crucible representative soon. *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

\*Trademark

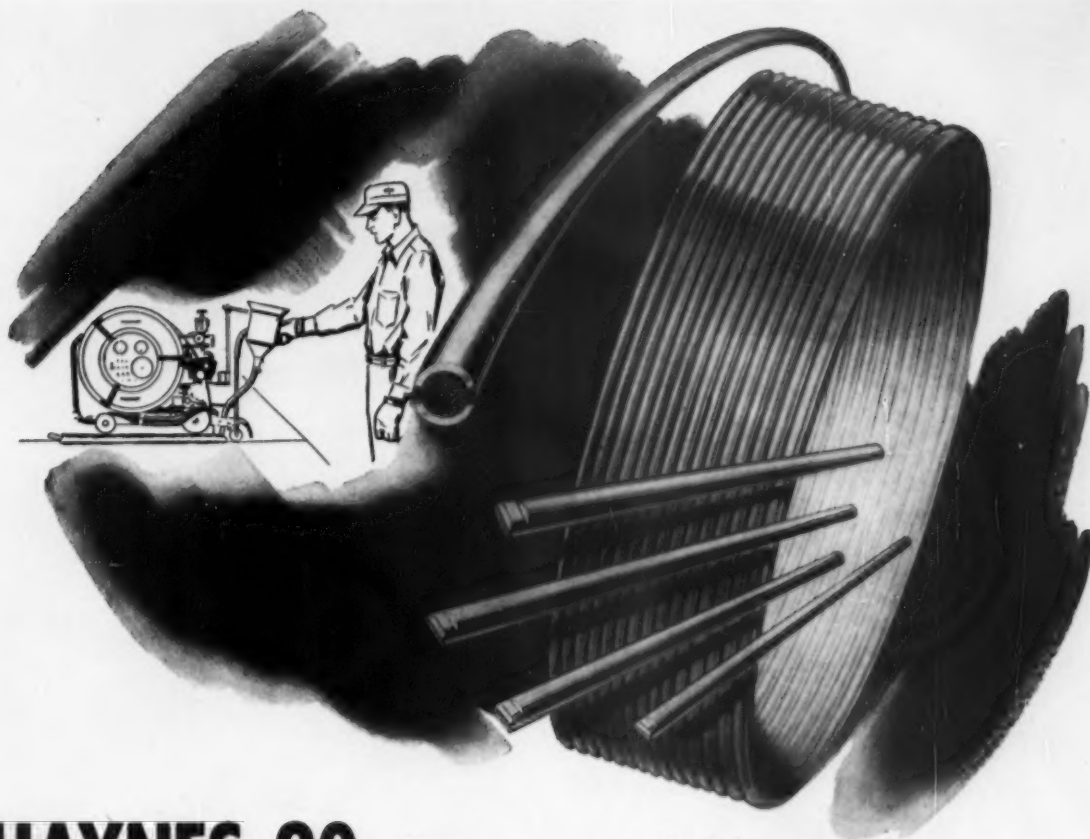


Write now for your free copy of Crucible's new 32-page booklet on *Resistal* stainless steel wire.

# **CRUCIBLE**

first name in special purpose steels

## **Crucible Steel Company of America**



# **HAYNES 90** alloy now available in tubes and at a **MUCH LOWER PRICE**

TRADE-MARK

Now you can save even more by hard-facing wearing-parts with HAYNES 90 alloy. This is because HAYNES 90 costs so much less in this new economical tube form. These new tube rods produce sound, uniform deposits that won't crumble or flake off at temperatures up to 1000°F. They provide the same high abrasion, impact, and corrosion resistance—the same dependable protection for your equipment that HAYNES 90 brought to you as a cast rod—and at a much lower price.

For manual hard-facing, HAYNES 90 tube rod comes in convenient 14-in. lengths for easy application with standard metallic-arc welding equipment. For rapid coating of large parts, HAYNES 90 also comes in coils for

mechanized hard-facing by the submerged-arc, inert gas, and open-arc methods.

HAYNES 93, HASCROME, and HAYSTELLITE alloys are also available in this economical tube rod form. HAYNES 93 iron-base rod is noted for high abrasion and corrosion resistance . . . HASCROME iron-base rod for high impact resistance . . . and HAYSTELLITE tungsten carbide rod is tops for resistance to severe abrasion.

For more information about these new, inexpensive tube rods and coils, along with other HAYNES long-wearing hard-facing products, contact your nearest Haynes Stellite Company office today.

"Haynes," "Hascrome," and "Haystellite," are registered trade-marks of Union Carbide and Carbon Corporation.



## **HAYNES STELLITE COMPANY.**

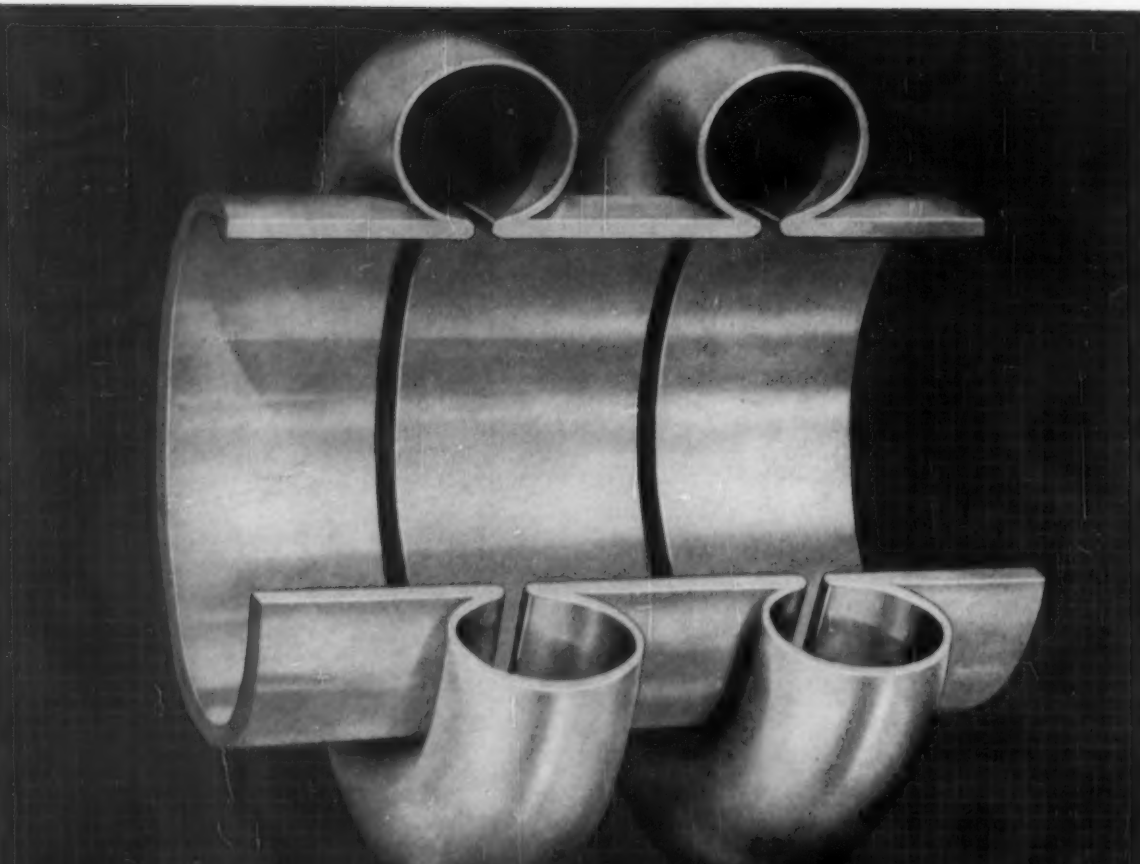
A Division of Union Carbide and Carbon Corporation



General Offices and Works, Kokomo, Indiana

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## 5 torturous fabrication steps...

### *Carpenter* Stainless Tubing excels in quality and uniformity

Pictured above is a sectional view of a patented packless expansion joint for pipe lines, pressure vessels, and special requirements. Sizes from a few inches to several feet in diameter have been in service for 15 years at temperatures to 1800° F and pressures to 10,000 psi, and no functional failures have occurred, according to the manufacturer. Unique design and construction advantages, exclusive fabricating techniques, and highest quality materials account for this long record of failure-free service.

All expansion elements (corrugations) in this type of joint are formed from Carpenter Stainless Tubing by five punishing operations. "There isn't a truer test of tubing quality," says the manufacturer. "It must be perfect in all respects—uniform grain structure, wall thickness, size, soundness, and blemish-free surface. Inferior quality in any one factor will cause failures in fabrication as well as in use . . . Carpenter tubing is the only kind that has rendered consistently failure-free service."

Perhaps you can profit from this manufacturer's experience.

Many others, too, have found there is a time-saving, cost-cutting difference in stainless tubing quality and uniformity . . . and Carpenter makes it. So why not apply the advantages of this provable difference to products you design or fabricate? Start by contacting your nearest Carpenter Distributor or Representative for prompt information on your needs.



MEMBER

**The Carpenter Steel Company,  
Alloy Tube Division, Union, N. J.**

Export Dept.: The Carpenter Steel Co., Port Washington, N. Y.—"CARSTEELCO"

# Carpenter



## Stainless Tubing & Pipe



# NEW H-5 1/2-YD., 9-TON

## BUCYRUS-ERIE COMPANY

South Milwaukee, Wisconsin

Gentlemen:

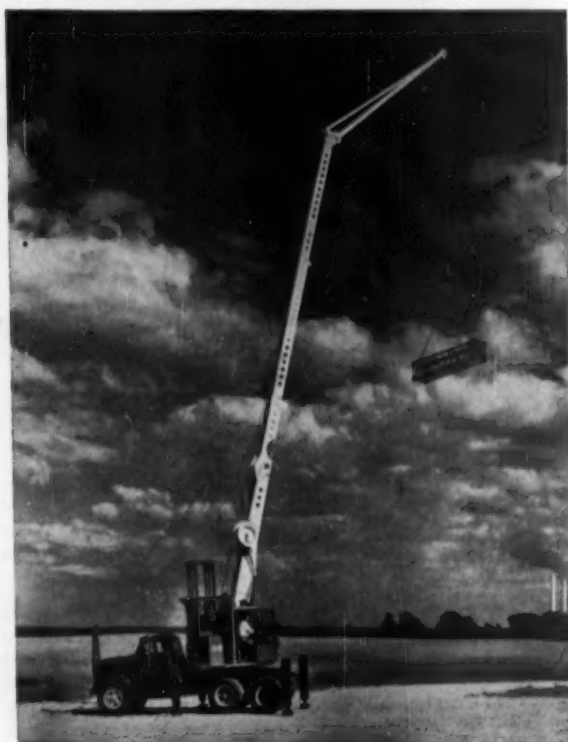
Send me your new H-5 Bulletin. This crane interests me for \_\_\_\_\_ work.  
(type of job)

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Title \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_

91H55

## Hydrocrane Mounts on Conventional Truck

Completely new from outrigger feet to boom tip, this powerful 9-ton, 1/2-yd. Hydrocrane brings you work ability of heavy carrier-mounted cranes at small crane cost. Patented hydraulic outriggers permit mounting crane-excavator on a commercial motor truck, new or used, without sacrificing any basic crane working capacity.



### Check these outstanding advantages—

**Unmatched precision control of loads.**

**High-lift, three-piece boom** (extra equipment at added cost) gives you 50 feet of reach, retracts hydraulically to 25 feet for travel. Boom and hydraulic fittings can be connected and machine working in less than ten minutes after arrival at job site.

**12-ft. telescoping boom action**—from 24 feet to 36 feet for standard two-piece boom, from 38 feet to 50 feet for high-lift boom, plus 20-ft. jib extension.

**58-mph top highway speed.**

**Every work function fully hydraulic.**

**Up to 240-fpm line speed.**

**Available with clamshell, crane hook, magnet.**

**Optional remote truck control from crane cab.**

**Meets highway laws for over-all length and axle loads** (depending on truck selection).

### See it in action

Find out what the new H-5 Hydrocrane can do for you. Ask your Bucyrus-Erie distributor for a demonstration.

## BUCYRUS-ERIE COMPANY

1880

South Milwaukee, Wisconsin

1955

75 Years of Service to Men Who Shape the Earth

New truck, inexpensive used truck, a truck you now own—the new H-5 Hydrocrane can be mounted on any standard commercial truck you choose.



# NEW Silco-Flex MOTOR INSULATION

## Offers These Amazing Physical Properties

● **Flexibility and Resilience** — *Silco-Flex* insulation remains flexible and resilient indefinitely. It is especially resistant to mechanical abuse and to stresses of overloading, rapid starting and stopping.

● **Moisture Resistance** — Completely sealed, *Silco-Flex* insulated coils are the most moisture-resistant commercial coils ever produced. They are production-tested while submerged in water . . . by far the most complete and searching high potential test used.

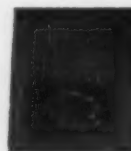
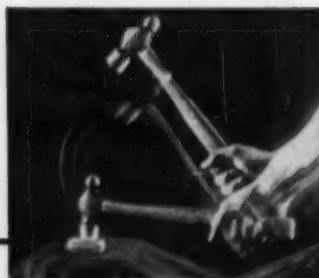
● **Abrasion Resistance** — Samples of insulation at right show effects after sandblasting with 90 grit aluminum oxide and 100 psi air for one minute. Nozzle-to-sample distance was six inches, thickness equivalent to 2300-volt insulation. Note difference in abrasion!

● **Homogeneity** — *Silco-Flex* insulation is a void-free dielectric barrier vulcanized into a unified insulating wall. It maintains its homogeneity under extremes of differential expansion and contraction due to thermal cycling.

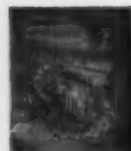
**Other Advantages** include exceptionally good thermal stability and chemical inertness. *Silco-Flex* insulation is also a much better heat conductor than ordinary electrical insulating materials. Moreover, enclosures now required to protect windings from moisture and abrasion may be eliminated in many cases.

Allis-Chalmers, working with Dow Corning Corporation, has developed *Silco-Flex* motor and generator insulation . . . truly new in concept . . . truly new in effectiveness.

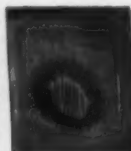
*Silco-Flex* insulation employs a pure silicone rubber combined with specially developed application techniques to produce an insulation unmatched by any other in use today.



*Silco-Flex*  
Insulation



Polyester  
Mica Tape



Asphalium  
Mica Tape



New *Silco-Flex* insulation is immediately available for all Class H form-wound coils and for Class A and B windings operating under selected service conditions. For complete information, call your Allis-Chalmers representative or write Allis-Chalmers, Milwaukee 1, Wisconsin.

A-4774

*Silco-Flex* is an Allis-Chalmers trademark.

# ALLIS-CHALMERS



acid. Pilot testing has produced acid satisfactory for reuse. The process may effect savings in pickling costs.

A 3000-ton "push through" press has recently been installed at an eastern steel plant. The giant press can turn out heads up to 10 ft in diam, is said to exert a maximum force of 6 million lb. Specially designed, it stands 68 ft from top to bottom of the pit.

Now under test in trial application is the first production model of a new unit which inspects tinplate at speeds up to 1500 fpm, reveals defects as small as 0.020 in. diam. Each of the two TV tubes used scans the sheet at 25,000 miles per hr retracing at 100,000 mph.

Recent freight car programs will not be enough if the business boom continues upward. A severe shortage of available cars this fall will put renewed pressure on roads to build cars at a faster pace. Railroads will attempt—with some success—to have additional rolling stock carry rapid amortization.

Steel producers in the U. S. and Canada may soon have a new source for manganese. A new process for treating low-grade ore has shown promise—so much so that a Canadian firm is planning to build a pilot plant for full scale testing. At present, 90 pct of the manganese used is imported from India and Africa.



a quick release fastener  
that...

# solves alignment problems

## "FLOATING SCREW" ASSEMBLY COMPENSATES FOR OUT-OF-LINE DOORS AND PANELS

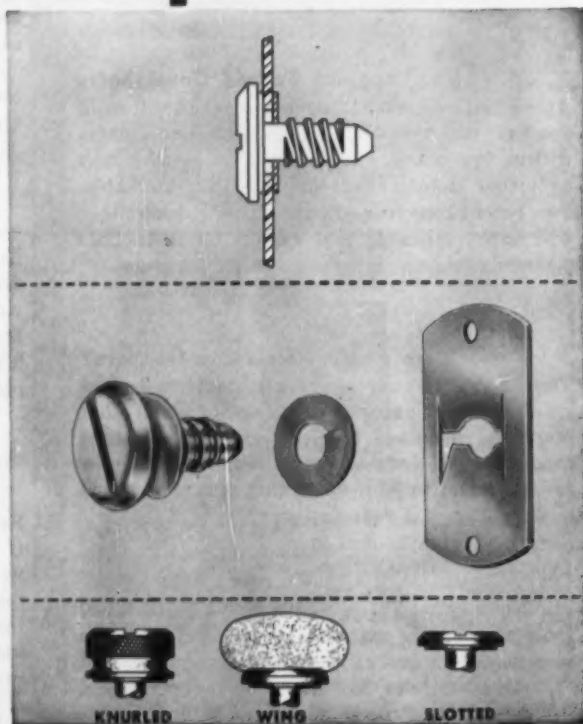
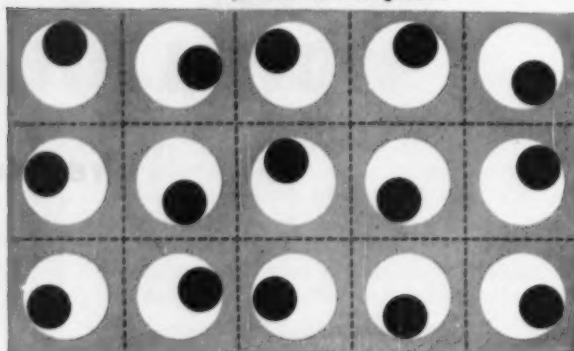
Installation of access doors and panels is made easy and production is speeded with Southco Quick-Release Fasteners. The wide alignment tolerances of Southco's "Floating Screw" adjust automatically to misalignment, saving mechanics' time. Also, the Southco "Floating Screw" insures accurate and uniform closure throughout the life of the equipment, compensating for warpage and bends resulting from hard usage.

One Southco grip length can meet most panel thicknesses on the average assembly—no need to specify many fastener sizes!

For complete information, write Southco Division,  
South Chester Corporation,  
238 Industrial Highway, Lester, Pa.

© 1954

Illustration indicates infinite variety of positions assumed by screw fastener to compensate for misalignment.



**SOUTHCO**

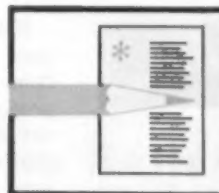
**FASTENERS**

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DRIVE RIVETS • ANCHOR NUTS •  
ENGINEERED SPECIALTIES**

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WHEREVER TWO OR MORE PARTS ARE FASTENED TOGETHER, STANDARD AND SPECIAL DESIGNS FOR IMPROVED PERFORMANCE AND LOWER PRODUCTION COSTS





## Consumers Battle Ebbing Steel Stocks

Few plants have comfortable inventories . . . Fourth quarter will bring greater problems . . . Purchasers resort to emergency measures to keep situation in hand . . . Plan ahead now for next year's needs.

◆ STEEL STOCKS throughout the metalworking field are approaching a critical point. There is no evidence of a buildup of inventories.

A fair segment of steel consumers have passable supplies now. How long they will be in this pre-

ferred position remains to be seen—especially in view of another downward revision in steel quotas.

Hard pressed manufacturers are struggling desperately to keep their inventories workable. They are faced with possible work stop-

pages or costly production cutbacks because of dwindling steel supplies.

Bearing the brunt of the tight steel market are the purchasing agents, who face the task of solving problems of supply, keeping

### Why Steel Buyers Are Under Pressure

#### REPORTS FROM EIGHT PLANTS

| Product              | Normal Inventory | Current Inventory | Remarks   |
|----------------------|------------------|-------------------|---|
| Appliances           | 30 days          | 7 days            | "There may be a panic"                              |
| Electrical Equipment | 30 days          | 10 days           | "As bad as World War II"                            |
| Farm Equipment       | 60 days          | 30 days           | "No relief until next July"                         |
| Railroad Cars        | 60 days          | 10 to 20 days     | "We're relying on warehouses."                      |
| Auto Body            | 15-20 days       | 8 days            | "Spreading Business more than normal"               |
| Construction         | 60-90 days       | 30 days           | "It would be critical if we hadn't anticipated it." |
| Tanks                | 60 days          | 20 days           | "The inventory is shot full of holes!"              |
| Small Stampings      | 30 days          | 0 to 10 days      | "Where is our next steel coming from?"              |

## SPECIAL REPORT

inventories in balance, and dealing with steel companies who are under just as much pressure from their own side to deliver the goods.

### How It Looks

Here is what one harassed purchasing agent faces for the rest of the year as he matches his hopes for adequate steel against his own company's scheduled production.

He is depending on mill promises that shipments won't be cut further, but he's not too confident they won't be. He's already had between 50 and 100 pct of his October tonnage removed from the mill books. His bar intake, because mills went on a 60-day cycle from 30 days, was slashed in half early in the third quarter. His incoming tonnage, not carryover on the books, will be cut anywhere from 5 to 40 pct beginning in October, while some tonnages are already slipping early in September.

His inventories probably have been cut in half and he's buying from warehouses, if not for direct production, at least to replenish or put his stocks in balance. He's thinking, reluctantly, about conversion. When he inquires, he will find few possibilities and those difficult to engineer.

Hanging over his head are the government grain bin program, the railroad car program, and the renewed pressure for cold-rolled sheets from the auto industry when new model production begins in full force in a matter of weeks.

### What to Do

What can he do? There are no sure fire methods of obtaining steel, but here are some practices that may help:

Group as many small purchases as possible into respectable tonnages. Try to consolidate sizes. It will aid in maintaining position on mill schedules.

Perform as many incidental operations as possible in your own plant or locally. Specifying slit or

sheared products, for example, only adds weeks to delivery dates.

Make good use of your own scrap. Nickel-bearing grades, for example, are as much sought after by mills as are their finished products.

Plan now for first quarter 1956 or later if you can. Carrying heavy steel inventories is never popular with management. But those who did this year found it paid off many times over.

Try remote sources; small or specialized mills. Many of these have been able to maintain relatively close delivery schedules and might be in a position to help out.

Try to trade out-of-balance inventory. Others might be long on the very products you need most. Some investigation along these lines may pay big dividends.

Keep trying. You know your competition is pulling no punches in its own procurement practices and is straining ingenuity to the utmost. At the same time, remember that consideration frequently pays off better than threats or intimidation.

### Inventory Picture

Meanwhile, IRON AGE reporters find most steel users fighting a delaying action in maintaining their inventories in workable condition. The big surprise is that there have been few cutbacks of production anywhere because of lack of steel.

A cross section of the inventory situation among consumers shows:

1. There are no huge inventories in consumers' hands. Only a minority appear to be in no immediate danger of running out of steel.

2. A fair segment of the steel consuming industries have passable stocks now. But this will not be the case in the fourth quarter, because of the reduced allotments—or quotas.

3. Each week sees an increase in the number of steel consumers whose stocks are reduced to five, ten, or 20 days. And these inventories are rapidly becoming out of balance.

As a result, relations between producer and consumer are now strained to the tension reached in immediate postwar days. After a

| 1955 SEPTEMBER 1955 |    |    |    |    |    |    | THURSDAY  |  |  |  |  |  |  | 1955 OCTOBER 1955 |    |    |    |    |    |    |
|---------------------|----|----|----|----|----|----|-----------|--|--|--|--|--|--|-------------------|----|----|----|----|----|----|
| S                   | M  | T  | W  | T  | F  | S  |           |  |  |  |  |  |  | S                 | M  | T  | W  | T  | F  | S  |
|                     |    |    |    |    |    | 1  |           |  |  |  |  |  |  |                   |    |    |    |    |    | 1  |
| 4                   | 5  | 6  | 7  | 8  | 9  | 10 |           |  |  |  |  |  |  | 2                 | 3  | 4  | 5  | 6  | 7  | 6  |
| 11                  | 12 | 13 | 14 | 15 | 16 | 17 |           |  |  |  |  |  |  | 9                 | 10 | 11 | 12 | 13 | 14 | 15 |
| 18                  | 19 | 20 | 21 | 22 | 23 | 24 |           |  |  |  |  |  |  | 16                | 17 | 18 | 19 | 20 | 21 | 22 |
| 25                  | 26 | 27 | 28 | 29 | 30 |    | SEPTEMBER |  |  |  |  |  |  | 23                | 24 | 25 | 26 | 27 | 28 | 29 |

1. Lump orders for better mill position.
2. Shear & Slit locally.
3. Use your scrap to best advantage.
4. Trade your imbalance for other fellows'
5. Try remote sources.
6. Plan ahead now for first quarter.
7. Be persistent.... (Others are)

short occupancy of the driver's seat in 1954, buyers are in no mood to be treated as bad boys who didn't learn the lesson of building and holding working, balanced inventories.

#### Some Took Advice

They are faced with the immediate problem of maintaining production and avoiding shutdowns. In spite of short tempers and strained relationships, they are in no position to switch suppliers. But they are spreading out their sources of supply as far as possible. The end result may be a change in customer relationships when the market does ease.

The only complacent purchasers are those who took the advice of steel companies and placed orders far in advance last fall. Today, a growing number of big users, particularly in the appliance field, are trying to advise mills, to the best of their ability, what their requirements will be for the first half of next year.

#### Little Conversion

While most consumers are fighting against costly conversion, few are hesitating to go to warehouses to keep inventories in balance. But this situation can't last since warehouses themselves are having a tough time keeping their inventories in workable condition.

Why the absence of conversion? It's a combination of reluctance on the part of consumers, many of whom were burned before, the absence of ingots, and the scarcity of excess rolling capacity. The steel industry's balance of ingot and rolling capacity is now closer than it has ever been.

However, a few conversion deals are known, even though they are the exceptions that prove the rule.

At the same time, gray market and broker activity is much less than might be predicted for current conditions. But offers are made. For example, in the Midwest, broker offerings for plate, base price 4.75¢ per lb, are quoted at 5.95 to 6.50. But brokers and would-be brokers are also finding steel hard to get. Most steel purchased is earmarked for production and that's where it goes.

## CONSTRUCTION

# HOUSING: More Building in '56

**Spending plans indicate nearly 10 pct of families intend to build this year . . . Almost as many are looking at 1956 . . . Easy financing helps, should continue.**

◆ DEMAND for new houses should remain strong well into 1956, a Federal Reserve Board survey indicates.

New figures compiled on consumer spending plans show that 9.4 pct of all nonfarm families (or "spending units") plan to or are considering buying or building a new home this year. Another 8.5 pct have similar plans for 1956.

When polled last year, only 6.6 pct of the families thought they would acquire a new house in 1955.

#### Easy Financing

The survey indicates that need for additional space and improving family financial conditions are boosting demand for new housing. Present consumer confidence in the future of the economy, and a backlog of housing demand result-

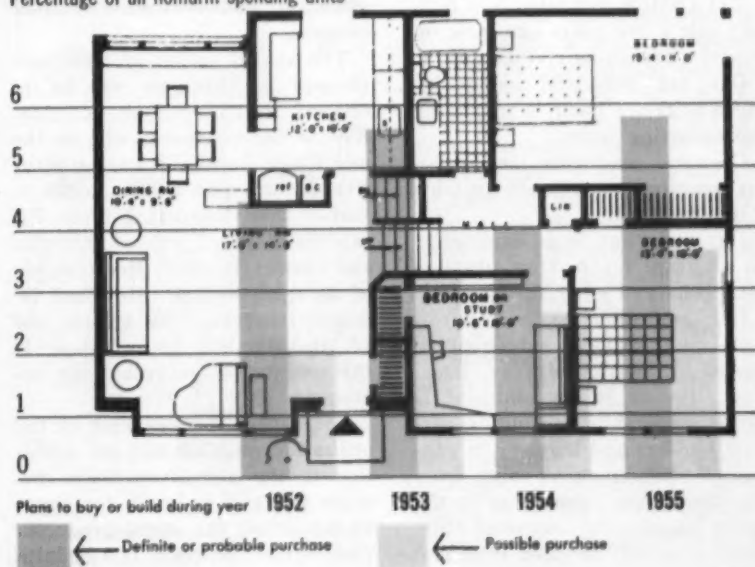
ing from dislocations of war and depressed economic levels in the thirties, also reinforce the housing market, the survey shows.

Availability of mortgage money at favorable terms has been an important stimulant to the housing boom, and continuation of relatively easy terms is a major factor in consumer plans to acquire new housing, the survey finds.

The Reserve Board survey, part of a general survey of consumer spending habits and plans, adds weight to the optimistic picture of the housing industry painted recently by a U. S. Commerce Dept. study which showed that vacancies now are running at only 2.2 pct, far below the danger mark and only slightly above the rate in 1950 during the peak of the housing shortage.

## More New Homes

Percentage of all nonfarm spending units



## TITANIUM: Growing Up In A Hurry

Civilian market increasing in scope . . . Aircraft industry keeps pace . . . Puts pressure on government to supply leadership in production and fabrication methods—By R. M. Stroupe.



**BLENDING** titanium sponge prior to pressing it into a consumable electrode for melting into an ingot and further fabrication.

♦ **TITANIUM**, relegated to a military role a few years ago, now indicates a promising civilian future.

One big industrial application which suggests itself is in plating and anodizing racks.

Chemical producers may someday require considerable amounts of the metal.

Just underway is an experimental program for making titanium nuts, bolts and other fasteners.

But according to a congressional interior subcommittee headed by Senator Murray, Dem., Mont., the fly in the ointment is strong leadership in guiding aircraft builders and industry in general efficient practical value from titanium usage. According to the report, an idea for improved utilization is usually shuttled from one

agency to another until it becomes obsolete.

The annual output of 8000 tons planned for this year will be increased to 22,500 tons by 1958. Key in the expansion will be the new Union Carbide & Carbon plant whose production will be added to that of Dow Chemical, DuPont, Titanium Metals Corp. of America and Cramet, in 1956. However, six of eight aircraft firms quizzed indicated that an even greater use of titanium will be necessary if this country is to retain air supremacy.

Government men working on the utilization program will pay attention to the aircraft industry because this still accounts for about 95 pct of all the metal produced. They agree that there is a definite

unresolved gap between production and fabrication. But they are quick to point out that original estimates of projected use made during the pre-Korean war period will have to be revised to fit current day plans. Growth of metallurgical data on titanium has been less rapid than expected.

The subcommittee report also placed a share of the blame for the difficult situation on the Office of Defense Mobilization for restricting the annual production goal to 22,500 tons. Harold S. Vance, titanium consultant to ODM, recently made a report to Defense Mobilizer Flemming highlighting the following aims:

1. Better means of communicating shop know-how from company to company.
2. Close study of methods for lowering the cost of the primary metal, and to scrap recovery.
3. Speedy government collection of requirement figures and incorporation of these figures into basic programs.

Another nagging question for U. S. titanium specialists is the extent of the progress foreign countries have made with this metal. Russian research is an unknown quantity, though Washington sources indicate that the Reds undoubtedly have some work underway.

Programs in Britain are not believed to be as far advanced as the United States.

Japanese titanium is being brought into this country in greater quantities each year. The sale price is in line with the domestic product. In 1953 the U. S. imported 71,309 lb from Japan. Last year the import figure rose to 385,045. That quantity has already been exceeded this year with four months left.



## STEEP ROCK: Mine Fulfills Prediction

Ontario iron ore project reaches maturity . . . Year's goal of 2.2 million tons in sight . . . Double by 1959 . . . Heavy mining equipment takes difficult operation in stride . . . Costs low—By T. M. Rohan.

♦ CYRUS EATON, Cleveland's enthusiastic all-around industrialist, was happy last week. His dreams of the big Steep Rock iron ore project were coming true with a bang.

Last week iron ore—torn from the bottom of a lake by a dynamite blast—surpassed its all-time 1951 production record of 1.32 million tons with the season only two-thirds over. New monthly records push output still higher with August scheduled at 425,000 tons.

For the first time in years the mine can sell every pound it can turn out. The year's goal of 2.2 million tons appears in sight and talk next year is 3.2 million tons. By 1959 the goal is 5.5 million.

### Goes Underground

Next year the mine will get a healthy boost from several quarters. A sorely needed huge new primary jaw crusher is in process of installation. Additional trucks for the pit are on order together with more blast hole drilling rigs.

The production figures will also get a healthy shot in the arm from the underground mining operation. This is scheduled for about 750,000 tons output after a \$15 million investment for tunnels, pumping equipment and conveyors is completed.

In full scale underground operation the ore will be moved in a continuous circuit year round from the mine face to the rail head via conveyor belt. The ore body which runs in vertical veins collapses of its own weight through a series of draw-down points into a horizontal shaft where it is drawn out by a slusher similar to a dragline operation, into pits and onto the conveyor belt. Horizontal shafts are run into the ore veins at 200-ft levels. The top level is for produc-

tion; the second and third for experimentation and exploration.

### Switching Job

H. Frank Keefe, Canadian National Railways' western general manager, has a tough job on his hands in switching cars into place on the 140-mile rail haul to the docks atop a 1200-ft trestle at Port Arthur, Ontario. Ore samples of each car are taken before leaving the mine and within an hour the content of each is teletyped ahead. Cars are then switched so that in each group of five cars, the two leading ones are high grade, the center is average and the last two low. Each must be spotted over a predetermined bin on the trestle.

This technique often involves 75 switches for 100 cars. All blending is done by dumping ore into bins on the dock which have total capacity of 60,000 tons. The dock was extended this year, doubling

its capacity and a site has been purchased for a second dock.

The railroad also has a provision for double tracking the 140-mile length when tonnage warrants. Additional cars are also expected to be ordered shortly for a 3-million-ton season next year. Deliveries will probably be delayed with the recent rash of rail car orders in the U. S. and Canada. Four or five ore boats—depending on size—can now be loaded simultaneously.

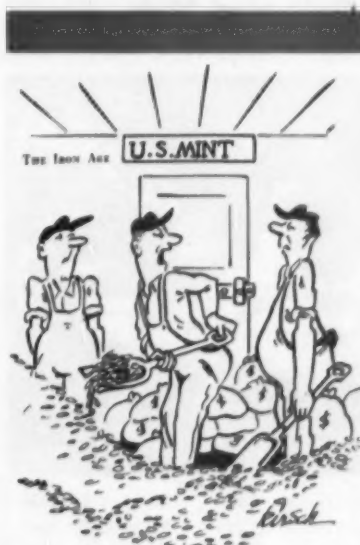
### Planned Years Ago

Where stockpiling is necessary it is done in the pit area, but this has been held to a minimum to avoid expensive double handling.

The original practicality of the operation—envisioned almost 50 years ago by a vacationing Harvard professor, Henry Lloyd Smyth, who discovered float ore on Steep Rock Lake's south shore—is holding true.

And the judgment of Mr. Eaton, who talked the U. S. and Canadian governments into loaning bulk of the money for the development in World War II, is being vindicated. At 5 million annual tons capacity projected for 1959, Steep Rock's investment will be about \$12 per ton of capacity compared to an estimated \$40 for taconite and \$25 for Labrador ore. The strategic location of Port Arthur makes round trip time from Lake Erie ports 5½ days compared to 6½ for the Duluth area, which means about a 10 per cent cost advantage.

About three-eighths of the Steep Rock's output is going to the Chicago area at present. Because of proximity, this area appears to have greatest market potential after opening of the St. Lawrence Seaway. The first 3 million annual tons are sold through the Cleveland Cliffs Iron Co.



"OK, so the price of iron ore has ascended, so what?"

## OUTBOARDS: From Put-Put to Boom

Industry sales will hit \$130 million this year . . . Up 10 pct from 1954, \$110 million from 1941 . . . Motors take 21 million lb of aluminum as trend is toward heavier units with more horsepower.

♦ OUTBOARD motors will take roughly 21,000,000 lb of aluminum this year, most of it as diecastings. Other components have kept pace as the outboard motor industry bounced from a \$21 million annual income in 1941 to an estimated \$130 million in 1955. Sales this year exceeded 1954 by 10 pct and the end is not yet in sight.

When Oliver Corp., heretofore a producer of farm equipment, entered the outboard motor market this spring, other firms seeking a more widely diversified product line took a long second look. Components suppliers had been watching outboard motors since 1947 when a backlog of wartime demand hoisted outboard motor sales to a record 625,000 motors built and sold in a single year.

At present the serious fisherman, and 66 pct of outboard motors being sold are for that purpose, can choose from about 21 brand names. He'll probably buy a motor in the 25 hp range, and use it for family cruising as well as fishing. About 18 pct of the buyers now own two motors, one for cruising and a motor of lower power for fishing.

### Midwest Leads

Though manufacturers concentrate in the midwest, the product is sold nationally and in late years has begun to move to Great Britain and Europe, with buyers in the British Empire at other points beginning to buy American.

Currently the average motor in use is about 10-15 hp, has 10-15 years' wear in it with reasonable

care. Nonetheless, the big seller is moving into the 25 hp category and the new motor announcements this fall will see further horsepower advances.

### Big Models Sell

Increasing motor weight doesn't seem to reduce sales appeal. A 15 hp motor weighs about 72 lb (of which about 46 lb is aluminum and most of that in diecastings.)

Though 72 lb would seem to be about all a weekend sportsman could tote down a steep river bank or through a lakeside marsh, the 25 hp is currently selling best for those companies offering motors in that power range. The 25 hp model weighs a hefty 111 lb, with about 74 lb of aluminum included.

American motors begin at a 2 hp motor retailing at \$94.95 and run through 40 hp. George Riley Co. Los Angeles, produces a herculean 75 hp motor that sells for about \$1000, but this is an exception.

Who buys outboards? According to the Outdoor Boating Club of America, just about anybody with a yen for the open water. For instance, in 1954 skilled workers bought 29.8 pct of total output. Retired persons and students purchased 5 pct.

### Diecasting Entrant

Clerical and sales people bought 14.9 pct. Farmers, managers, proprietors, farm labor, protective services, factory labor, and a scattered unclassifiable group bought the rest.

It's notable that dollar volume of outboard motor sales has climbed more swiftly than unit sales, the answer being that the

### Outboard Motor Sales



|              |               |
|--------------|---------------|
| 1946—250,000 | 1951—290,000  |
| 1947—425,000 | 1952—320,000  |
| 1948—500,000 | 1953—450,000  |
| 1949—350,000 | 1954—430,000  |
| 1950—340,000 | 1955—473,000* |

(\*—Estimate)

individual buyer is equipping his boat with greater horsepower despite the increased cost of the more powerful motors.

Diecasting is a large scale entrant in the outboard motor building field. Johnson Motors at Waukegan has one of the largest captive diecasting shops in the country, for example. But shell molding and high tensile pressed powder techniques have been given considerable scrutiny. Though not sold on these applications, the industry is definitely interested.

A big factor in the increasing demand for outboards is the big increase in leisure time among all economic brackets. The outboard is geared in size and price to fit most pocketbooks. It has broad family appeal, with the rapid gain in popularity of water skiing and other water sports in addition to the more easy going types such as fishing which demanded less power and speed.

At its present rate of growth, the outboard motor components market is one to watch.

## Floods:

**Torrington Co., others, back now in full operation.**

Now that the waters have receded, some of the original damage estimates from New England have proved overly pessimistic.

The damage report carried on these pages last week on the Torrington Co., a leading producer of needle bearings, needles and swaging machines, was inaccurate. The company plants had to shut due to loss of utilities but all three are now back in full production.

The original damage estimate at American Optical Co., Southbridge, Mass., and Putnam, Conn., has been sharply revised downward. Case, frame and safety divisions are now in full operation and the overall \$12 million warehouse inventory was undamaged.

Reed Prentice is cleaning up results of 6 ft of water, plans partial operation next week, full operation a week later. Wyman Gordon's North Grafton press plant was undamaged.

September 1, 1955

## PRICING

# CAST PIPE: New Price Index

**IRON AGE replaces pricing methods with new index . . .**  
**Developed by U. S. Pipe & Foundry Company . . . Convertible into**  
**dollars per net ton for Class B and heavier pipe.**

◆ DUE TO technological improvements in manufacture of cast iron pipe, THE IRON AGE is replacing its former method of reporting cast iron pipe prices with an index developed by U. S. Pipe & Foundry Co., Birmingham.

This index takes into account the increasing percentage of pipe manufactured by the centrifugally-cast method, beginning in 1922. For appraisal purposes, the index is convertible into dollars per net ton for Class B or heavier bell-and-spigot pipe produced by the pit cast method.

### Savings Passed On

Because manufacturing economies inherent in the centrifugally-cast method have continually been passed along to consumers, no single factor can be developed to calculate an equivalent Class B price that will apply to all years during which centrifugal pipe has been made. But from February 1950 to December 1954 the relationship of Class B and Federal Specification centrifugal pipe

prices has been stable enough to develop an index applicable to both.

The price index of cast iron pipe for the years 1950 through 1954 is calculated by taking the sum of the average price per foot of 6, 8, 10, 12, 14, 16, 18, 20, and 24-in. Class 150 Federal Specification of WW-P-421 Bell and plain end centrifugal pipe in 18-foot lengths and multiplying by an arbitrary factor of 2.27. By reading these index figures as dollars per net ton, they may be used as the value of Class B pipe.

Due to the replacement of Federal Specification (WW-P-421) for centrifugal pipe with the new Federal Specification WW-P-421a, and the more general use of ASA Specifications A 21.6 (AWWA C-106), the U. S. Pipe & Foundry price index of cast iron pipe has been calculated, starting January 1955, by substituting Class 150 Standard Conditions pipe of these specifications for the per foot price mentioned above and using an arbitrary factor of 2.44. This gives the same index values.

## Cast Iron Pipe Index

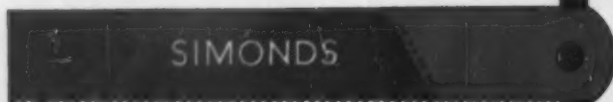
### January 1950-July 1955

|                    | Birmingham | Chicago | Los Angeles | New York | San Francisco |
|--------------------|------------|---------|-------------|----------|---------------|
| Jan. '50           | 82.5       | 97.0    | 99.4        | 93.1     | 99.7          |
| Feb. '50-Sept. '50 | 83.4       | 97.9    | 100.3       | 95.1     | 100.6         |
| Oct. '50-Nov. '50  | 86.2       | 100.7   | 103.1       | 100.6    | 103.4         |
| Dec. '50-Mar. '51  | 96.0       | 110.5   | 113.7       | 110.4    | 113.9         |
| Apr. '51-July '51  | 96.0       | 110.8   | 114.2       | 110.4    | 114.2         |
| Aug. '51-Apr. '52  | 96.0       | 111.4   | 115.2       | 110.3    | 115.2         |
| May '52-Aug. '52   | 96.0       | 112.7   | 116.5       | 110.6    | 116.5         |
| Sept. '52-June '53 | 100.9      | 117.6   | 121.4       | 115.2    | 121.4         |
| July '53-Dec. '53  | 104.3      | 121.0   | 125.4       | 118.9    | 125.4         |
| Jan. '54-Apr. '55  | 104.3      | 121.0   | 125.4       | 118.9    | 125.4         |
| May '55-July '55   | 104.3      | 121.0   | 126.1       | 116.5    | 126.1         |

Figures in table are price indexes for centrifugal cast iron pipe, with car-load freight allowed to cities shown:



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Easy Cutting**



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There is a difference in hacksaw blades. A quality blade cuts faster, easier, straighter . . . gives more cuts per blade. That's why those who know, insist on Simonds "Red End" — the blade that's famous for quality.

Tough electric furnace steel, accurately milled and precision set teeth, scientific heat treatment and close production control are combined in these blades to give sharper, faster, longer lasting cut-ability to every blade. What's more, you have a choice of three types of blades for lowest cost and best results on different jobs: STANDARD STEEL for general purpose use; HIGH SPEED MOLYBDENUM for longer wear and greater resistance to breakage; HIGH SPEED TUNGSTEN for best results in cutting tough alloy steels. All blades come in 10 and 12 inch lengths and in standard tooth sizes with a choice of Hard Edge or All Hard. Specify "Red End" and get more for your hacksaw dollar.







**CENTER SPAN** of new 5-mile bridge over Straits of Mackinac will be second longest in the country.

♦ **COST** of the 5 mile bridge that will span the Straits of Mackinac will be over \$80 million. Linking northern Michigan with the rest of the state, new Mackinac Bridge will be second only to the Golden Gate in center span distance.

Eighty million is a lot of dollars and in case you're interested in bidding on suspension bridges, here's how it's done for the Mackinac.

American Steel and Wire rolls ingots into 1/3 in. rods and ships to company mills in Trenton, N. J. At Trenton, the rod is heat treated and cleaned, then drawn through

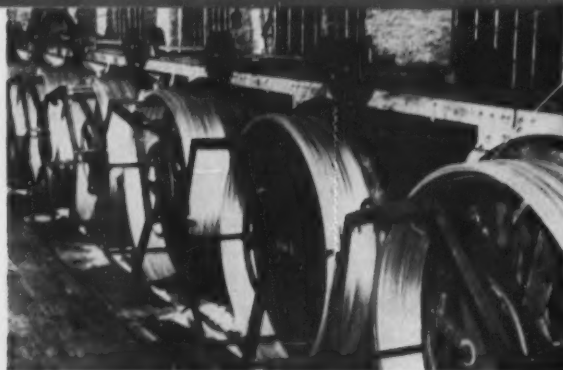
tungsten carbide dies to .192 in. size. Wire is then hot galvanized in zinc and tested for tensile strength of 225,000 lb per square inch.

Sixty thousand wire coils go to American Bridge, which is doing the Mackinac erection, for incorporation into the main bridge cables. Wires are spliced or coupled into endless coils. They will be spun into cables 2 ft in diameter, 8362 ft long and 23 million lb heavy. Cross section of each main cable will have over 12,000 wires.

Three hundred and sixty-eight suspender ropes, hung at 39 ft intervals between the main cables and the roadway, are made up of wire processed in similar manner. These ropes will be 2½ in. in diameter and weigh 9 lb per foot. Suspender ropes are prestressed before mounting, serve as temporary catwalk supports during main cable spinning.



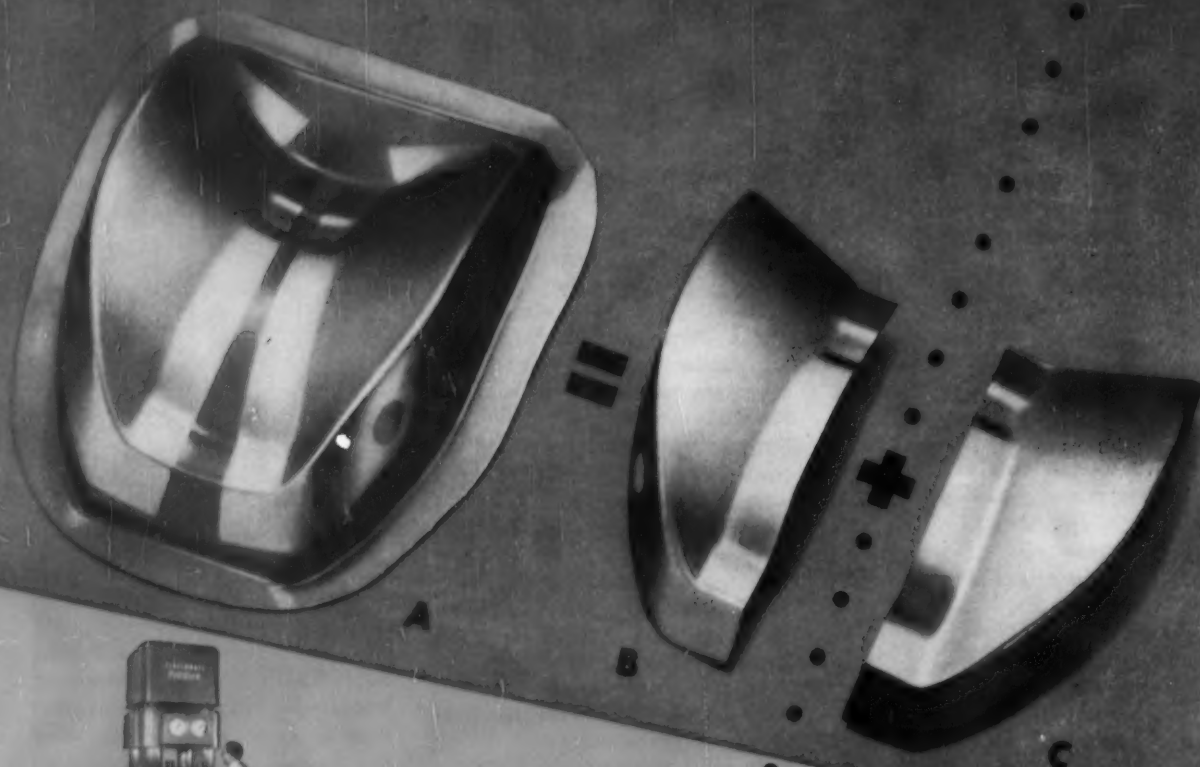
**SUSPENSION** rope for Mackinac Bridge takes 100 tons over specifications in American Steel and Wire test showing safety margin.



**Left:** UNDER TENSION of 235,000 lb., wire on rope is compacted and freed of structural elasticity.

**Above:** REELS RECEIVE bridge wire from pans of molten zinc in hot galvanizing operation at Trenton, N. J.

# Tricky automotive part gets the Hydroform treatment



Cincinnati 12" Hydroform

With the help of the Cincinnati Hydroform, a supplier to the automobile industry has greatly simplified his production of complex-curved, right-hand and left-hand body structural components.

In the example illustrated above, shape "A" was accurately developed, then readily drawn on a 12" Hydroform from a 10 1/4" dia. blank of 20 gage cold rolled steel. (Note the extreme variations in contours.) Parts "B" and "C" were produced simply by sawing the parts out of the drawn shape. Shape "A" has been masked and paint sprayed, forming guide lines for sawing.

Tool costs were exceptionally low. The Hydroform punch was cast to shape in Kirksite. The draw ring was made

from ordinary steel, with a hand-sawed opening for the punch.

A similar Hydroforming procedure to that described above is being used successfully, with very substantial time and tool-cost savings, for the forming of duct sections for jet engines from heat-resisting materials.

Have you fully investigated the many Hydroforming advantages . . . and if Hydroforming can be profitably applied to your work? Let a Cincinnati Milling field engineer give you complete information. For a description of the Hydroforming process and specifications of the 8", 12", 19", 23", 26" and 32" machine sizes, write for Bulletin M-1750-3.

## Hydroform

PROCESS MACHINERY DIVISION  
**THE CINCINNATI MILLING MACHINE CO.**  
CINCINNATI 9, OHIO, U. S. A.



## Subversives:

### New commission will study defense security.

A bi-partisan 12-member commission will review the creaky Federal security program this fall. Both government employees and defense workers come within the scope of the investigation.

The commission will attempt to pick out faults in existing security programs and make recommendations for corrective legislation and administrative action.

#### Stay in Plants

Under present laws, security measures against suspected subversives in industry are limited to restricting them from classified jobs and security areas in defense plants.

There is no way to keep them from working in nonsensitive jobs in defense plants, or in vital jobs in defense supporting facilities, such as power plants and transportation.

A Senate security subcommittee called for passage of a pending bill giving the Defense Dept. power to bar subversives from defense plants and supporting installations, but Congress took no action before adjournment this year. Labor generally opposes such measures on the grounds they give too much power to employers.

#### Place Ship Contracts

Contracts have been signed by two private shipyards with the Maritime Administration for vessel conversion as part of the Liberty ship conversion and engine improvement program.

Newport News, Va., Shipbuilding and Dry Dock Co. and the Bethlehem Steel Co. Shipbuilding Div., Baltimore, will modify and lengthen two Liberty ships and install new engines. The Newport News contract is for \$2.5 million; the Bethlehem award amounts to \$2.1 million.

A 6600 shaft hp open cycle gas turbine engine being completed by General Electric Co., Schenectady, will be installed at Newport News in the *John Sergeant*. Cleveland

Diesel Engine Div. of General Motors Corp. is building a 6000 shaft hp free piston generator gas turbine propulsion unit to be placed in the *William Patterson* at Baltimore.

#### Map War Buying

Geographically dispersed sources of critical production items are being sought by the Defense Dept. as part of its "production allocation planning" program.

A new Pentagon memorandum says mobilization orders are being designed to make emergency production virtually self-triggering.

Still to be worked out is the form such orders will take, as well as their relationship to lower priority military items that may be in production at essential plants on M-Day.

Mr. Pike is urging the assignment of key civilians as deputy armed services procurement planning officers (ASPPOs). He emphasizes that these men should be qualified to deal with industry at the executive level.

#### Planes Boost Rockets

Research rockets headed for high places get a boost-up from launchers aboard Navy fighter planes.

Experiments in propelling the

## DEFENSE

test rockets vertically into the upper atmosphere from planes flying at 30,000 ft are proving feasible, the Navy says. Maximum heights reached by this "Rockair" method are about 90,000 ft.

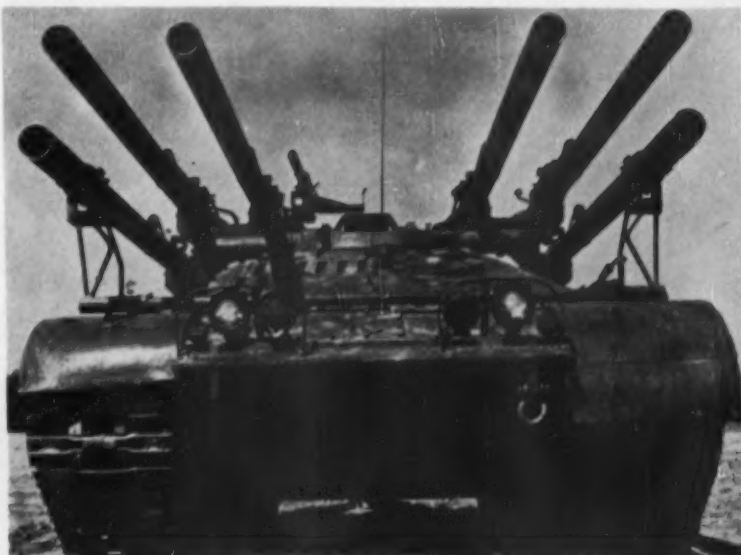
Plane-launched rockets do not climb to the altitudes attained by those fired from ground level, but they are believed suitable for measurements of air temperatures and densities, ozone concentrations, and high-altitude winds.

#### Small Firms Gain

Continued upswing in the share of military contracts awarded to small companies is reported by the Pentagon's top supply executive, Assistant Defense Sec. T. P. Pike.

In the January-May period, says Mr. Pike, the average share of net awards accruing to small business was 25.5 pct. He compares this percentage with 18.8 pct for the previous 4½ years and notes that the difference between them equals about \$770 million annually at the present procurement rate.

In May, small firms signed \$315 million worth of net contracts for the largest month's business in '55.



THE THING, known by the Greek translation, Ontos, features six 106 mm recoilless rifles and is designed to be a light, fast-moving anti-tank vehicle for use on amphibious landings. Ontos is being built for the U. S. Marine Corps by Allis-Chalmers.



## EXPANSION IN INDUSTRY

### Iron Ore:

**New rail link will bring huge deposit to market.**

Work is slated to begin before this winter on a Labrador rail link which will open up what may prove to be one of the world's largest known iron ore deposits.

#### To Cost \$16.5 Million

The Newfoundland Govt. will guarantee a \$16.5 million bond issue for a 45 mile line which will connect with the railway already carrying ore from Knob Lake, Labrador, to Seven Isles, Que. The Canadian Javelin Ltd. ore deposits which the link will make available to market are at Wabush Lake, southwest of the Knob Lake site.

It's estimated by the Canadian

firm that at least 1 billion tons of measured open pit ore are in the Wabush Lake area.

Ore is expected to be moving over the new link before the season closes in 1956.

Total cost of getting into production at the new site is estimated at over \$32 million.

### Keystone Steel:

**Spends \$10 million to expand semi-finished by 50 pct.**

Keystone Steel & Wire Co. will spend \$10 million to increase the semi-finished capacity of the Peoria plants by about 50% pct.

The expansion, financed entirely from retained earnings, is intended to double present rolling mill capacity, enlarge the capacity

of the present four open hearth furnaces and increase the wire mill capacity.

The emphasis will be placed on the new rolling mill equipment. Installation is expected to take about 18 months.

### Plans New Bar Mill

Rotary Electric Steel Co., Detroit, has completed plans for a \$4.5 million plant development program. It will bring the company's bar capacity to 132,000 tons annually.

The project includes construction of a new 15-strand bar mill at its Mound Rd. property. The new facility is slated for operation the second quarter of next year.

The mill will turn out stainless steel rods and bars below the company's present range of one-half inch. It will supply the firm's new wire facilities in the stainless field.

### Alcoa Adds Equipment

An expansion program described as a "calculated risk" is planned for the Aluminum Company of America's Wenatchee, Wash. plant.

The risk factor, according to Wenatchee manager W. N. Farquhar, is the fact that the new facilities will have to utilize interruptible power from the Bonneville Power Administration.

Despite this fact, ALCOA plans to spend \$2 million to install new smelting equipment including additional pots, and new alumina storage facilities.

The new facilities are expected to go into operation next May and increase the primary aluminum output to about 100,000 tons annually.

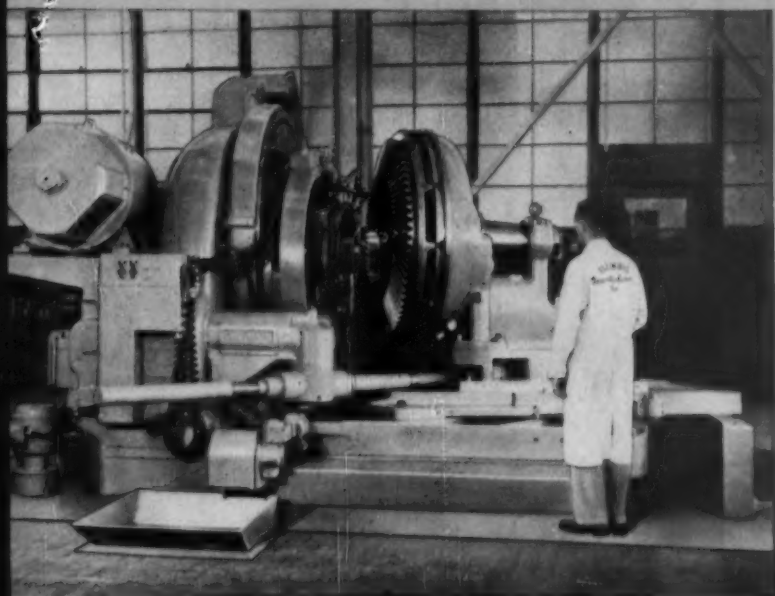
Company officials indicate that every effort will be made to remove the risk by replacing the interruptible contract with one for firm power as soon as possible.



EXTENSIVE METALS and ceramics research will be carried on in new \$5 million General Electric laboratory at Schenectady. Here two workers heat a hollow metal block in a hydrogen furnace preparing it for insertion in Sendzimir planetary hot mill.

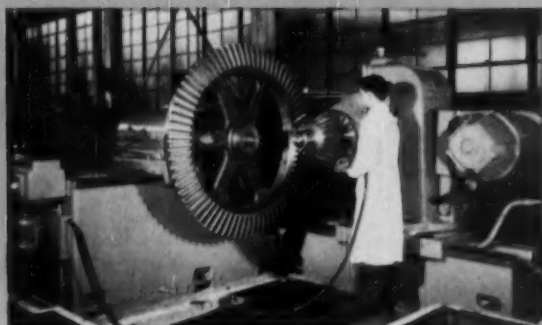


# BIG SPIRAL BEVEL ZEROL BEVEL HYPOID GEARS

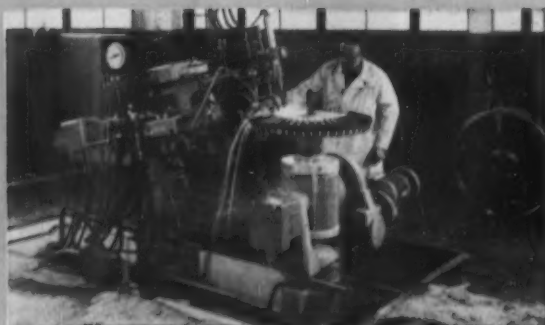


## PRECISE GENERATION OF BIG BEVEL GEARS

This new No. 170 Spiral Bevel and Hypoid Gear Generator is the nucleus of the most modern and productive unit of large bevel gear generating machinery in the world. It generates spiral bevel, zerol bevel, and hypoid gears to 72" diameter, 2.875" tooth depth (.75 D.P.), 10" face, and 10" hypoid pinion offset above or below centers. The localized gear tooth bearing, an established necessity for today's heavily loaded gear drives, is precisely controlled to your specifications.




**POWER TESTING**—This new No. 61 Angular Hypoid Testing machine is the most advanced of its kind. Large spur, helical, herringbone or bevel gears are operated under load at any shaft angle, giving exact inspection of tooth contact under operating conditions. It will efficiently test gears up to 90" diameter and hypoid offsets to 10" above or below centers.



**SURFACE HARDENING**—This new No. 2 Flame Surface Hardening machine is closely controlled electronically to produce precise, uniformly distortion-free results—it's the all important climax to our large gear production facilities. Spur, helical, bevel and hypoid gears to 120" diameter, .75 D.P., and 18" face are surface hardened in this machine.

Visit our modern plants—see the finest equipped plants in the world—designed to serve you.


Look for this mark  ... the symbol on finer gears

*Gears for Every Purpose ... one gear or 10,000 or more*

## ILLINOIS GEAR & MACHINE COMPANY

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*If these  
really cost less...  
then why do so  
many mass-producers  
keep on using these?*

Since American first gave Phillips-head Screws to industry, more and more smart production men have graduated from "price-tag buying" and its false economies.

And once they sell themselves on American Phillips Fastening, they stay sold. That's why you see more and more major makers . . . of cars, refrigerators, radios, TVs, in fact the finest consumer hard goods in all lines . . . using substantially more American Phillips Screws every year.

If you've ever driven one, you know why! And if you haven't, why don't you? Just fit the recessed head on the 4-winged driver . . . aim it . . . pull the trigger . . . and that's all there is to making a flush, tight American Phillips Fastening, with screwhead and work-surface both unbroken.

Now, these same production men know they can bank on American for quality as specified, delivery as promised, and service as you can find it nowhere else. And American will give you this same priceless sense of security . . . right from the first order you place. Now?

**X** marks the spot . . . the mark of extra quality

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WILLIMANTIC, CONNECTICUT

Plants at Willimantic, Conn. and at Norristown, Pa.  
Warehouse and office at Chicago  
Office, Detroit, Michigan



An

# ALLEN-BRADLEY *Special*

## CONTROL PANEL...



Use this A-B Handy Catalog as a quick-and-easy reference guide in selecting components for trouble-free control panels.



The Sign of  
QUALITY  
Motor Control

for which the ALLEN-BRADLEY HANDY CATALOG  
PROVIDES THE BUILDING BLOCKS

Your special control panels may be simple or they may be complex... but their reliable performance can be guaranteed in advance if you use the time-tested, trouble-free components listed in the A-B Handy Catalog, shown above.

In this 120-page Handy Catalog you will find the "building blocks" for any type of control panel. Every unit has a long service record of dependable performance in all kinds of industrial applications. Being "QUALITY" products, they are a sales asset to your machines.

First—there is the simple solenoid design. With only ONE MOVING PART, there are no troublemaking pins, pivots, or bearings to corrode and stick.

Second—the double break, silver alloy contacts do away with contact maintenance. You never have to file or clean the contacts on A-B controls.

Third—the Quality workmanship that goes into A-B controls is obvious at a glance. Use A-B "building blocks" for your special panels or let A-B build such panels for you!

Allen-Bradley Co., 1316 S. Second St., Milwaukee 4, Wis.  
In Canada—Allen-Bradley Canada Ltd., Galt, Ont.

**ALLEN-BRADLEY**  
**SOLENOID MOTOR CONTROL**

# The Quality Line of Manual Motor Starters



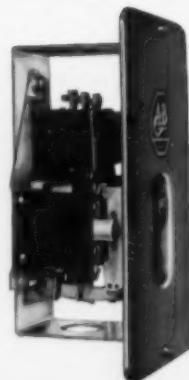
GENERAL PURPOSE



WATERTIGHT



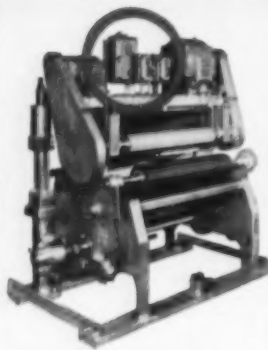
EXPLOSION-PROOF



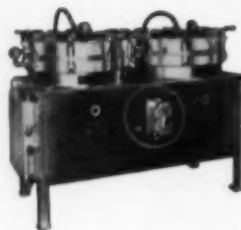
FLUSH TYPE



A-B manual starter, in NEMA 1 general purpose enclosure, on DeWalt metal cutter.



A-B manual starters, in NEMA 4 watertight enclosures, on Stehling fleshing machine.



A-B manual starter, in NEMA 7 explosion-proof enclosure, on Hilco oil reclaimer.



A-B manual starter, in Type 1B1 flush mounting, on Noble & Westbrook shell marker.

The popularity of Bulletin 609 manual starters rests on the following facts!

- 1—They are so simple. Few moving parts mean few chances for trouble.
- 2—Quick-make and quick-break switching action prevents contact "teasing."
- 3—Double-break, silver alloy contacts need no cleaning or filing—they are always in perfect operating condition.
- 4—Use of "buttons" for ON and OFF



Bulletin 646 auto-transformer starter.

switching is in line with operation of automatic starters and is convenient for machine operator.

- 5—The two solder-pot overload breakers provide continuously dependable and accurate motor overload protection.

Be sure to send for a bulletin describing the full line of A-B Bulletin 609 manual cross-the-line starters up to 5 hp, 220 v; 7½ hp, 440-550 v.

Allen-Bradley Co.  
1316 S. Second St.  
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Allen-Bradley Canada Ltd.  
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SOLENOID STARTERS  
QUALITY

B-55-MR





# Unsurpassed-anywhere!

IT ALL COMES DOWN to one fact...that you can always count on Roebling high carbon flat spring steel to reduce preparation time, machine stoppages and rejects to a minimum. What's more, it's made as you want it... annealed, hard rolled untempered; scaleless tempered; tempered and polished, blued or strawed.

You *pay* for the best every time you buy flat spring steel. Make sure you *get* it. Specify Roebling. John A. Roebling's Sons Corporation, Trenton 2, N. J.



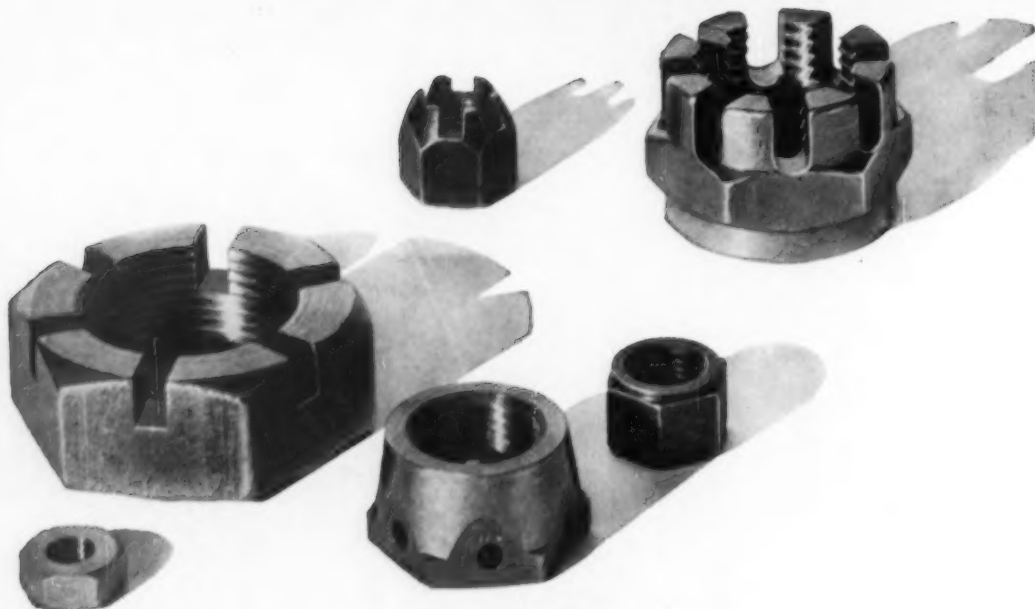
**ROEBLING** 

Subsidiary of The Colorado Fuel and Iron Corporation

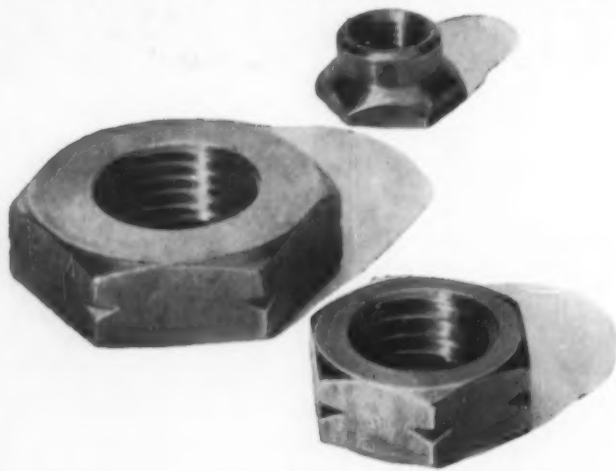


California giant Sequoias—  
largest of all trees.

ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. & 5 PITTSBURGH ST. • CHICAGO, 5625 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13226 LAKewood HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 6340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • ROCHESTER, 1 FLINT ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 700 1ST AVE. S. • ST. LOUIS, 3001 DELMAR BLVD. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, 19 RECTOR ST., NEW YORK



## *Economical way to make nuts . . . out of Youngstown Cold Finished Bars*



●Take a look at these nuts. Some of them are pretty complicated. Wood & Spencer of Cleveland, Ohio, uses Youngstown Cold Finished Bars to produce them to specifications at the right price.

When the finish requirements are fussy, these cold finished bars eliminate most grinding operations. They're free of seams. And the chips are small and break off easily. Not the stringy kind that get caught in the cut-off blade on an automatic.

When you order Youngstown Cold Finished hexes, you can be sure they'll be held to the right tolerances. And cracked steel rarely turns up. If you use automatics, it will pay you to use Youngstown Cold Finished Bars. Get in touch with your nearest Youngstown District Sales Office.



# ***Youngstown***

**COLD FINISHED  
BARS**

**THE YOUNGSTOWN SHEET AND TUBE COMPANY**

General Offices Youngstown, Ohio

District Sales Offices in Principal Cities.

*Manufacturers of  
Carbon, Alloy and Tool Steel*

**SHEETS - STRIP - PLATES - STANDARD PIPE - LINE PIPE - OIL COUNTRY TUBULAR GOODS - CONDUIT AND EMT -  
MECHANICAL TUBING - COLD FINISHED BARS - HOT ROLLED BARS - WIRE - HOT ROLLED RODS - COKE  
TIN PLATE - ELECTROLYTIC TIN PLATE - BLACK PLATE - RAILROAD TRACK SPIKES - MINE ROOF BOLTS**

## Report To Management

### Storm Warnings Go Up

Property damage from the recent East Coast floods is estimated at \$3 billion. This figure doesn't include the cost of lost production, will probably go higher anyway.

If you are located in the northeastern states, don't overlook the weather. There was a time when floods and hurricanes were things New Englanders read about in the papers. Those days are gone.

The Atlantic hurricane belt has shifted northward. Since 1938, damaging storms have been hitting the upper eastern seaboard with tragic regularity. And the trend is toward more frequent and violent outbreaks.

### Why Floods Hurt Most

Remember too that floods are out of bounds as far as insurance coverage goes. Existing policies cover mostly mobile items like cars and goods in transit. Except for a few special cases, fixed installations are out.

And there's little chance flood policies will be extended beyond present limits. Army Engineers say U. S. flood damage averages \$466,000,000 annually. At Martins Ferry, Ohio, annual damage averages 20.57 pct of maximum probable loss for 21 commercial buildings.

These and other figures have led insurance men to call self-supporting flood policies impossible, even under Federal operation. Insurance people feel they're out on a limb as it is, won't go looking for new flood business.

### They Must Do Better

Jokes about the weather man's predictions draw no smiles from New England industrialists and home owners. Lives could have been saved and property damage averted if the forecast for the flood period had been "prolonged cloudburst" instead of "occasional showers."

As things stand now, the Weather Bureau can chart the past course of a storm and predict the general nature of tomorrow's weather. Weather men can't tell how fast a storm is going to move; they can't tell how much rain will fall on a locality.

What's needed is a study of the present performance of the Bureau and then probably more research on atmospheric movements. This will cost money and you'll be among the contributors. But vague and incorrect weather predictions are a lot costlier.

### Optimism Where It Counts

Six out of ten manufacturers contacted by the National Industrial Conference Board expect second half business to equal or exceed first half's. You've seen all kinds of predictions and polls but this one rates special attention.

Businessmen are close to the workings of the economy. They speak from knowledge. But more important, they are in a position to make their own predictions stand up.

Four-fifths of the manufacturers contacted plan to hold or increase work schedules during the next six months. In other words, a majority of the men who decide payroll size are feeling optimistic.

### Wages Follow Costs

Rise in the cost of living index for July to 114.7 means that 650,000 General Motors and Ford workers will get one-cent-an-hour increases. Escalator clauses are becoming more common today and no one seems to question their soundness.

But this type of wage structure actually runs counter to the law of supply and demand. It sends more money out to compete for goods when supply is tight. When goods become plentiful and prices drop, cost-of-living arrangements reduce the buying power of wage earners.

## INDUSTRIAL BRIEFS

**Computers Clinic . . .** How to fit computers into industrial plant operations will be studied at a special Computers Clinic to be held in conjunction with the Tenth Annual Instrument & Automation Conference, Sept. 12-14 in Los Angeles.

**New Warehouse . . .** A new John A. Roebling's Sons Corp. warehouse has been opened at 5988 Minerva Ave., St. Louis, Mo.

**Buys Out Company . . .** The Electric Service Engineering Co., Joliet, Ill. was purchased by H. K. Porter Co., Inc. It will now be called the Eseco Division.

**Metalworking Financing Up . . .** More metalworking firms than ever before are using commercial financing to obtain additional cash to invest in jigs and dies, maintain supply parts inventories, replace obsolete machinery and conduct research and planning, according to Walter E. Heller & Co., Chicago, nation's largest firm engaged exclusively in commercial financing.

**High Temp Furnace . . .** Salem-Brosius, Inc., Carnegie, Pa., is now exclusive agent for sale and licensing of a new ultra-high temperature furnace (over 4000°-F) and the processes of Metals Chlorides Corp., Middleport, N. Y.

**Iron Ore Up . . .** Canadian shipments of iron ore from producing mines in the first half of 1955 totalled 4,090,048 tons compared with 1,756,047 tons in the corresponding 6 months of 1954. Some 3,679,658 tons were for export and 410,390 tons for domestic use, compared with 1,365,303 tons for export and 390,744 tons for domestic consumers in the 1954 period.

**Plant to Plant . . .** Howell Electric Motors Co., revealed to industrial editors the Howell Motor-mobile, a "laboratory-on-wheels" that will bring the company's product right to the customer's plant for demonstration and inspection.

**Malleable Iron . . .** Pearlite malleable iron casting production in 1955 will approach 170,000 tons, approximately double 1954, according to a survey recently made by Malleable Founders' Society. The estimate includes tonnages produced by member companies only, but it is believed this represents 90-95 pct of the total made in the United States.

**Half Interest . . .** Firth Sterling Inc., has announced the acquisition of a half interest in a new company, Strategic Metals Corp., Conshohocken, Pa. Plant is engaged in chemical beneficiation of complex tungsten ores and residues.

**Opens New Lab . . .** General Electric last week formally opened its new radiation laboratory to delve further into peacetime uses of the atom. The \$300,000 structure, converted from a former factory building at the Schenectady plant will specialize in testing radioactive materials and high-energy radiation equipment.

**New Coke Ovens . . .** Wilputte Coke Oven Div., Allied Chemical & Dye Corp. has been awarded the contract for design and construction of 52 by-product coke ovens at Wisconsin Steel Works, South Chicago.

**Adds Warehouse . . .** United Chromium Div., Metal & Thermit Corp., has established warehousing facilities at 415 E. 151 St., East Chicago, Ind.

**Gets Bar Mill Order . . .** Award of a \$1,700,000 contract for the manufacture of a 15-stand bar mill was announced by the Birdsboro Steel Foundry & Machine Co. The new mill was ordered by Rotary Electric Steel Co., Detroit.

**Expands Product Line . . .** Simonds Saw & Steel Co., Fitchburgh, Mass., is now operating Heller Brothers Co., Newcomers-town, O., under the name of Heller Tool Co.

**Sales Distributor . . .** Clark & Osborne Co., Indianapolis, Ind., has been appointed by Jones & Lamson Machine Co., Springfield, Vt., to handle sales of J&L optical comparators.

**Another Research Lab. . .** Alloy Rods Co., York, Pa., electrode manufacturing concern has opened a new research and development center at York devoted exclusively to product research and quality control.

**Sales Representative . . .** Wiedemann Machine Co., Philadelphia has appointed Rees Machinery Co., Inc., Pittsburgh, as sales representative in Western Pa., South-eastern Ohio and W. Va.

**Canadian Rep. . . .** Research-Cottrell, Inc., Bound Brook, N. J., manufacturer of Cottrell Electrical Precipitators for industrial gas cleaning announced the appointment of Sheldons Engineering Ltd., Galt, Ontario as sales representatives in Canada.

**Exclusive Distributor . . .** Claud S. Gordon Co., Chicago has been appointed exclusive distributor of Westinghouse Electric Corp. standard industrial furnaces and related equipment.

**Opens New Branch . . .** Kaiser Aluminum & Chemical Corp. has established a branch sales office in The Hodge Building, 360 Delaware Ave., Buffalo, N. Y.

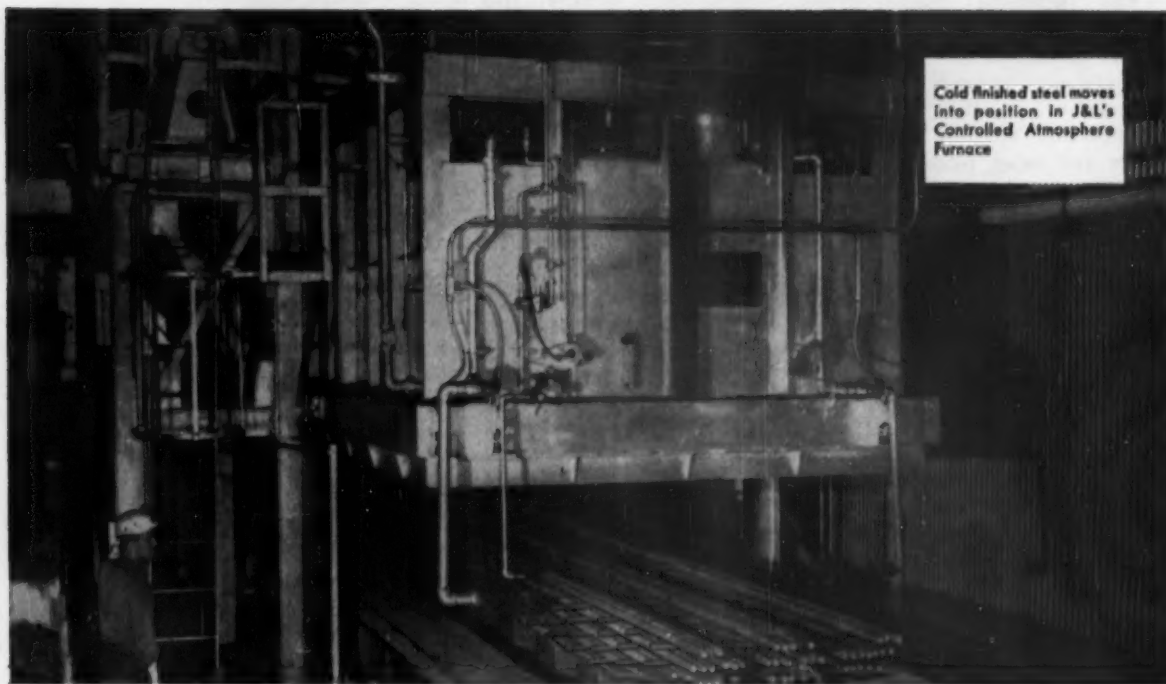


# Cut Your Production Costs

**whatever  
treatment  
you need:**

- bright annealing
- case carburizing
- normalizing
- stress relieving
- carbon restoration

**thermal  
treatment  
in prepared  
atmosphere  
furnace  
saves you time  
lowers over-all  
costs**



Cold finished steel moves  
into position in J&L's  
Controlled Atmosphere  
Furnace

Why incur the trouble and costs of thermal treatments when J&L can do the job for you . . . quickly and economically? J&L's Controlled Atmosphere Furnace can be employed to improve the machinability or to meet the mechanical properties you need in your bar stock.

Order J&L Cold Finished Bars—thermally treated to the needs of your production line.

***Jones & Laughlin***  
STEEL CORPORATION — Pittsburgh

**J&L  
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Without obligation please send me your booklet "Extra  
Services to Users of Cold Finished Steel."

Name

Title

Company

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City  Zone  State



## What's Being Done About Auto Safety

**Ford's ambitious crash program leads the way . . . New emphasis is being placed on safety throughout the industry . . . Expensive program will result in automotive design changes—By W. G. Patton.**

♦ **FORD ENGINEERS** have launched the most ambitious crash test program in the auto industry in a broad attempt to make automobiles much safer than they are today.

The increased emphasis on safety shown throughout the industry follows in the wake of the tremendous upward surge of horsepower in the new high-compression engines. In recent years the sales pitch has been concentrated on power and speed, with the inevitable result a second look at automotive safety.

Engineers and researchers who have to struggle for months to develop small, metal test bars and simple test setups to nail down some vital engineering fact don't envy Ford engineers who are now engaged in setting up the crash test program.

**Brought Results . . .** The emphasis on improved safety in automobiles has already brought results in the industry: (1) A decision by several car producers to make safety belts available to the public, (2) redesign of door locks so they won't open during a crash. (It has already been shown that your chance of survival is twice as good in a car crash if the doors don't spring open.)

For more years than the industry now cares to admit, auto engineers have been saying that little could be done to make cars safer under crash conditions. Reasons given are convincing enough and engineers who have argued the futility of crash test-

ing have some other good points, including the fact that during the past 25 years the fatality rate has dropped from 16 to less than 7 deaths per 100 million miles.

In the face of widespread public criticism, however, this is not enough. Automobile engineers are going to work on safety. Ford is leading the way at present but it can be anticipated that many car producers will soon be working feverishly.

**Use Lifelike Dummies . . .** In a typical crash test, Ford engineers run a full-size car into a heavy timber barrier or into another vehicle at a predetermined speed and direction. A tow line is tripped just before impact. An instrument van rides along beside the crash car, connected by 20-ft lengths of electronic cable.

Ford engineers have designed what they call anthropomorphic dummies. These dummies have the same weights and dimensions as average motorists. Their skeletons are steel weldments; their skin and muscle is plastic. Tough plastic is used for muscle, softer plastic for skin. Joints are very much like those of human beings.

Special instrumentation has had to be developed. Electronic instruments are inserted in the heads and in the chest cavities.

**Expensive Instrumentation . . .** One of the instruments developed is called an accelerometer. Four to eight of these units are inserted in a dummy. For all practical purposes, this is a small strain gage.

Another instrument used is called a tensiometer. This instrument measures the rate of acceleration in the chest and head of the passenger. These instruments alone cost about \$250 each, not exactly inexpensive.

Test makeup is very expensive, as might be expected. All test details have to be arranged so there is no possibility of an instrument failure. In addition to wire and gage attachments, Ford engineers cut a hole in the roof of the car and mount a high-speed camera for the purpose of taking pictures during the crash.

**Record on Film . . .** The sun visor, header and windshield are covered with aluminum foil. When the dummies make contact with the windshield, the time and force of the impact is recorded.

### **What Makes Safety Engineering Tough**

**Crash tests are not readily reproducible.**

**Cost of crash testing is prohibitive.**

**An absolutely safe car would be too heavy and too expensive.**

**Automakers can't concentrate on safety at expense of styling under today's competitive market.**

**Engineering can't educate the driver or improve highways.**



## How Great Lakes Steel *looks* at quality



SAMPLE "PINS" from heats are sent to a special Quality Control Laboratory where analyses of previous tests by wet chemistry are double checked by spectrograph.



SPECTROGRAPH is used to make doubly certain the finished steel meets the customer's specifications. Here a densitometer reading is made of a spectrogram to determine the percentage of elements present in the steel.

Quality is something you can *see* in our modern laboratories. In the photograph above a spectrogram is readied for reading in the densitometer—and one more test is underway to help assure quality.

Precision control tests such as this one are applied at every stage of production to assure you the quality of steel required for your product and production methods.

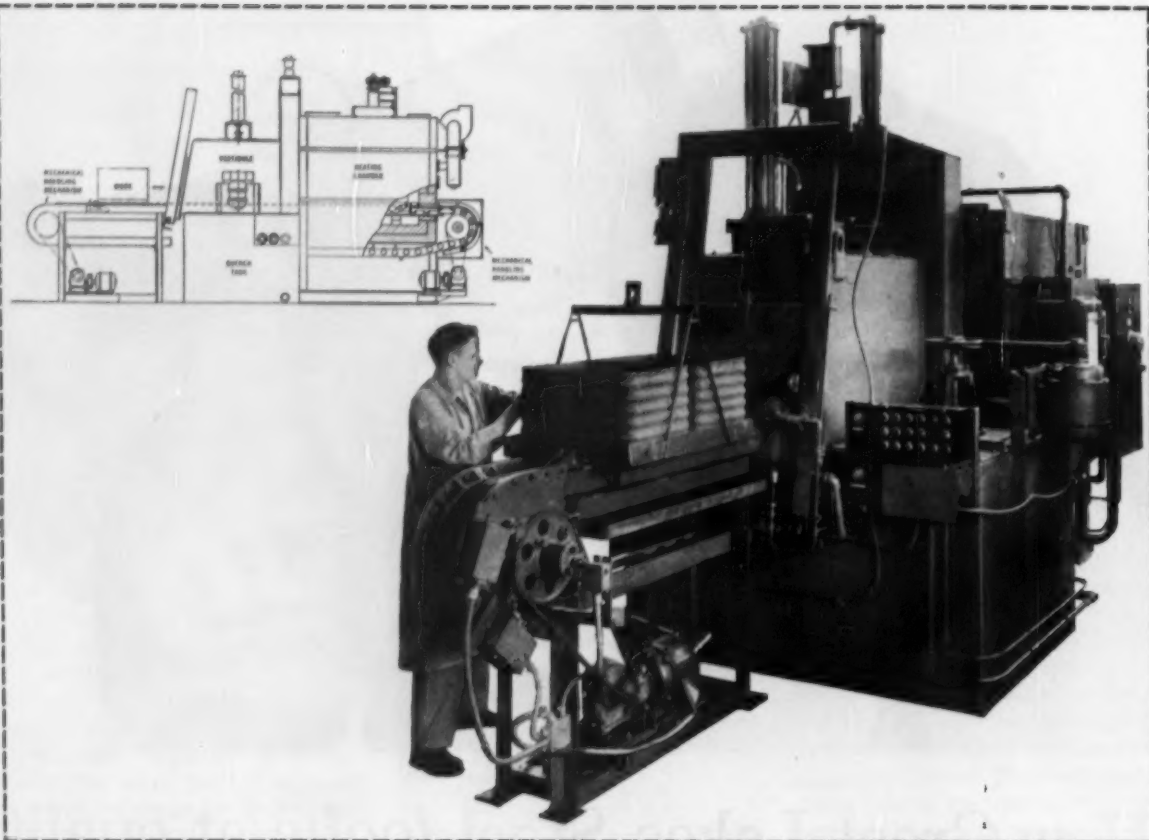
At Great Lakes Steel, the emphasis is on quality and service. Where your production problems involve steel—and particularly flat-rolled steel—we invite you to make them *our* problems. Great Lakes Steel is as close as your telephone.



**GREAT LAKES STEEL CORPORATION**

Ecorse, Detroit 29, Michigan • A Unit of

**NATIONAL STEEL CORPORATION**



## Automatic Allcase=Automatic savings

Now you can push a button and get *automatically* uniform work quality and lower labor costs with Surface Combustion's Allcase furnace. These combined advantages—gained by new automatic handling and cycle control—give you low-cost, high-volume production in batch heat treating with controlled atmospheres.

One operator can handle 3 to 10 of these furnaces, programming his furnace charging at his convenience. He can put a load on the charge-discharge mechanism in front of the furnace at any time while the previous charge is in the heating chamber. The entire cycle is governed by temperature controls and timers pre-set to metallurgists' specifications.

All of the new Allcase automatic handling equipment is, of course, optional, and any degree of automatic handling can be provided. Critical physicals can be reproduced time after time, with a minimum of human error and supervision.

**write now for the story of the new Automatic Allcase**

*Allcase is a trademark of S.C.C.*

**SURFACE COMBUSTION CORPORATION, TOLEDO 1, OHIO**





## Automotive Production

(U. S. and Canada Combined)

| WEEK ENDING   | CARS    | TRUCKS |
|---------------|---------|--------|
| Aug. 27, 1955 | 131,848 | 20,881 |
| Aug. 20, 1955 | 142,239 | 22,852 |
| Aug. 28, 1954 | 95,624  | 17,872 |
| Aug. 21, 1954 | 104,718 | 17,218 |

\*Estimated Source: Ward's Reports

Another detail is interesting: the dummies' faces are covered with chalk—to show the area of contact during collision.

Incidentally, the instrument van Ford is using amplifies and records on film crash test data picked up on 16 different channels simultaneously. Results of these records require extensive analysis after the crash test has been made.

This is obviously very expensive testing. Most of the Ford cars tested so far are new cars. Placing of instruments in the dummies, adjusting the seat belts and arranging other details requires several days. The cars are completely demolished in most tests and have to be junked.

Engineers are firmly convinced their safety tests will pay off.

Some of the most important changes to be made in our passenger cars during the next few years may result from efforts to make passenger cars safer. Despite a good statistical record on safety, the automobile industry is becoming increasingly aware that something important must be done to improve the safety.

## New Lincoln Site

Another major project in Ford's multi-million dollar postwar expansion program was announced last week. Ford has taken an option on 325 acres in Novi Township, 28 miles northwest of Detroit, as a site for a combined assembly plant and general office for its Lincoln Div.

The plant will have some similarity to the new Ford assembly plants at Louisville, Ky., and San Jose, Cal. The new building will contain approximately 1,500,000

sq ft and is scheduled for completion in 1957.

All Lincoln manufacturing operations will be consolidated at the new location. Manufacturing now being conducted at the Mercury Div., Wayne, Mich., and Los Angeles, will be brought back to the Novi plant.

This move is apparently another decision by Ford to bring complete autonomy to each of its divisions. The resemblance between Ford and General Motors operating methods seems to be increasing steadily. The two firms seem to agree perfectly on one thing: decentralization is the best way to provide optimum in manufacturing efficiency.

## Changeovers Hit

According to statistics compiled by Ward's Reports, car-truck output has already dropped 24 pct under the industry's high recorded in April this year. The all-time peak is 216,629 for a single week. Last week's production aggregated 172,695 cars and trucks, according to Ward's.

Chrysler divisions as well as American Motors and Mercury

## AUTOMOTIVE NEWS

were in the middle of model changeover last week. Lincoln has already started to produce 1957 models.

The GM changeover will come next month. Meanwhile, both Ford and GM are pushing production as hard as ever, maintaining their feverish pace of earlier months. All indications point to the fact that Ford will changeover within a few weeks.

Ward's now estimates that a possible 8,500,000 cars and trucks may be built in the U. S. plants during 1955. This will surpass the all-time record of 8,019,160 established during 1950 by nearly one-half million cars, a figure not expected to be challenged.

A hot competitive race—between Buick and Plymouth—has been overshadowed by the hectic Ford-Chevrolet competition.

Latest new car registration figures indicate that Buick is leading Plymouth 383,061 to 340,063 for the first six months of 1955.

## THE BULL OF THE WOODS

By J. R. Williams

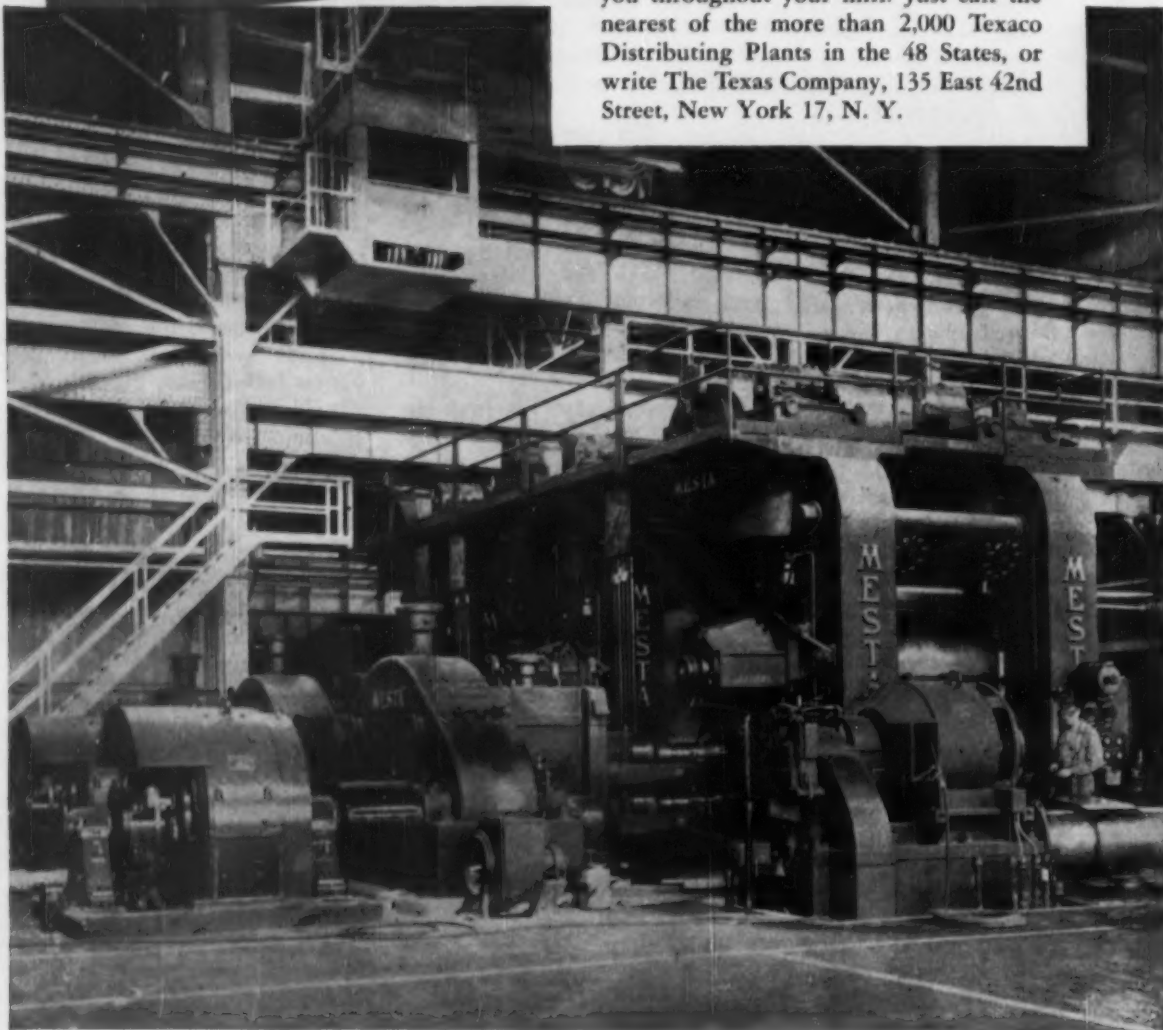


# A BETTER LUBE FOR BETTER PROTECTION

**E**NCLOSED gears and their bearings get better protection with *Texaco Meropa Lubricant*—a fact proved in the toughest service in mills everywhere.

*Texaco Meropa Lubricant* is made from top quality oils blended with extremely effective EP agents and lead soap. The result is a lubricant that stands up under heat and pressure, has exceptional adhesive properties for long-lasting protection. *Texaco Meropa Lubricant* resists oxidation, does not separate in use or storage, does not foam, and is non-corrosive to gears and bearings.

Let a Texaco Lubrication Engineer help you throughout your mill. Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.



## TEXACO Meropa Lubricants

FOR STEEL MILL GEAR DRIVES

TUNE IN... TEXACO STAR THEATER starring JIMMY DURANTE on television... Saturday nights, NBC.



## Have-Nots Land Defense Contracts

**New policy aims at turnover in U. S. suppliers . . . One out of every three contracts now goes to firms getting first crack at defense work . . . Trend will continue and broaden—By G. H. Baker.**

♦ IF YOU are looking for a government contract, here's good news: Firms that have never supplied equipment to the government before are now accounting for one out of every three contracts awarded by the Defense Dept.

The volume of "new blood" suppliers is rising. The old Pentagon practice of maintaining a more-or-less static list of suppliers is in the waste-basket.

Orders have been issued from Defense Sec. Wilson to keep lists of suppliers "fluid" and to knock off the old custom of doing business with the same old contractors to the exclusion of new firms.

**More Land Contracts . . .** As a result of this new policy, it's now a lot simpler to land a government contract or subcontract. In recent months, companies without previous experience in doing business with the government won contracts worth \$99 million—nearly 10 pct of the total dollar volume.

Trend is to continue and broaden in the months ahead. Assistant Secretary of Defense T. P. Pike plans to expand the "procurement base" by bringing in still more new suppliers, particularly smaller firms.

**Army Bristles . . .** High-ranking professional military men assigned to Washington are bristling at the increasing load of non-military assignments being saddled on the Army. Most of these extra projects come under the heading of "public works," and have little or nothing to do with military matters.

Professional soldiers, most of

them West Point graduates, are beginning to resent the "WPA atmosphere" that's beginning to seep into many staff offices that formerly crackled with terse efficient plans for training and moving armies.

**Politics Enters . . .** A career officer in the Army, Navy, or Air Force is not expected to become an expert on political patronage. It should be none of his concern whether the party in power needs votes in Bangor or Albuquerque. But under the "public works" program now seeping into the Pentagon, many a staff officer finds himself deeply involved in "make work" projects for so-called "distress" areas.

**Patronage—**whether it involves a postmastership or a \$7 million defense contract—is completely outside the sphere of military operations, and should remain so. But high-ranking officers are now being pressured into ordering dams, planes, or guns for localities that need work. Actual military need is sometimes a secondary consideration.

**See Tinplate Scramble . . .** Food processors soon will be scrambling for all the available supplies of tinplate, new U. S. Department of Agriculture forecasts indicate.

A record supply of food will be available for the rest of this year and in early 1956.

Harvests of vegetables and grains

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## UNIONS WILL ATTACK

A top CIO official is dropping broad hints on the kind of political activity some unions will conduct next year. Jack Kroll, director of the CIO political action committee, outlines his 1956 election campaign as follows:

■ "The Eisenhower Administration is the most corrupt Administration this country has had since the Harding regime and—if it is allowed to continue in office—will result in the complete domination of our government by Wall Street.

■ "We have a Big Mink Administration in Washington, giving away everything that's not nailed down and some of the things that are.

■ "We have a Big Business Republican party in the states trying to nail labor to the cross."

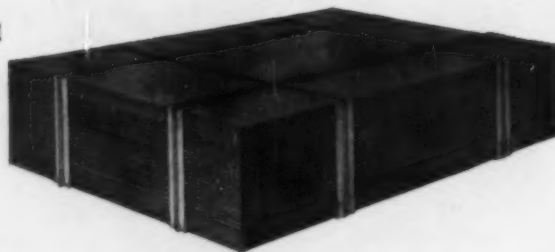
■ All CIO members are asked by Walter Reuther, CIO chief, to put up \$1 apiece to get the "right kind" of candidates elected. A campaign kitty of at least \$7 million is in the making.

# **You'll find safety and savings in steel roof deck construction**

Steel Roof decking has proved itself an outstanding material for industrial and commercial buildings. Strong, yet light in weight, steel roof decks are easy to apply and economical to maintain. They can be insulated to exact requirements . . . holding roof dead load to a minimum and permitting economy in the design of supporting structures.

The heavy demand for J&L sheet steel to be used in the manufacture of steel roof decks points up the growing acceptance for this method of construction. In addition, it provides evidence of the manufacturer's confidence in J&L's ability to furnish quality steel exactly to specification.

Whatever *your* product, whatever *your* requirements for formability, uniformity or drawing qualities, you can depend on J&L. You get the most out of your production equipment and add to the value of your finished products by using J&L sheet steel.



**serving steel users  
everywhere —**

J&L's nation-wide distribution is supported by its location and facilities for prompt, dependable river, rail and truck shipments.



**J&L  
STEEL**

***Jones & Laughlin***  
STEEL CORPORATION — Pittsburgh



are headed for record peaks, and the output of livestock products probably will be the largest on record.

Milk, eggs, and other dairy products are likewise plentiful.

Some softening of retail prices is indicated, reflecting the general abundance.

## Budget:

### Booming economy may take U. S. out of red.

Optimistic Federal budget officers, cheerfully watching the booming economy pour billions of unexpected tax dollars into the till, for the first time are officially looking for tax cuts next year.

Treasury Dept. conservatively projecting present trends for the rest of the year, say this year's budget deficit will shrink to \$1.7 billion. Six months ago, they looked for a deficit of \$2.4 billion.

Treasury Sec. Humphrey says that government spending, now estimated at \$63.8 billion in the fiscal year ending next June 30, must be reduced by only 3 pct to give a balanced budget. He seems confident the budget will be balanced by early spring.

Sec. Humphrey intimates that sound budget cuts are a real possibility next year. And he points out that the two major areas of revenue—individual and corporate income taxes—are estimated conservatively.

### Income Up

Individual income is now computed at a \$300 billion rate this year, although it is running at an annual rate \$300 million higher than that now and is expected to climb. Corporate profits are figured to amount to \$40.9 billion this year, although they are running now at an annual rate of \$42.5 billion.

Actually, the country may find itself with a budget surplus this year, to be applied against tax cuts to take effect either retroactively to next Jan. 1 or to start with the new fiscal year beginning July 1. Revenues are going to be up at least \$2.1 billion more than originally estimated.

## Flood:

### Disaster toll mounts; U. S., industry aid repair.

Facts on the East Coast flood disaster stand something like this:

Property damage has been estimated at \$3 billion. This compares an average annual flood damage for the whole U. S. of under a half billion; and a figure of 1 billion for the Kansas-Missouri floods of 1951.

Construction, steel, canning, food and other industries are offering priority and, in some cases, free service to the stricken area. U. S. Steel and Bethlehem Steel have issued statements promising full cooperation in making structural supplies available for rebuilding.

Washington is pouring funds, emergency jobs, defense contract preference, food and repair teams into the flood area. Up to \$100 million in federal funds will be spent to repair public facilities and clear away debris. Red Cross is asking \$8 million in flood relief funds.

Small Business Administration and other lending agencies will approve long term, low interest loans to firms in the disaster region. Fast tax write-off privileges will prob-

ably be extended firms outside the present approved categories.

Steps to prevent or alleviate similar disasters in the future center on insurance, weather reporting and weather control. Existing insurance policies are limited mostly to mobile items. President Eisenhower favors government insurance.

### Boost Coal Wages

Southern coal producers fell in line with Northern operators by boosting miners' wages \$2 per day. For most mine operators, this means increasing miners' wages by \$1.20 per day as of September 1, and by another 80¢ per day April 1, 1956.

This wage increase is the biggest ever gained by John L. Lewis, United Mine Workers chief—and it is probably the most painless victory of his long career. In the past, wage rises have been accomplished only after some long and bitter strikes.

Mine owners and operators plan to pass on all or nearly all of the higher costs to coal consumers.



AGREEMENT: Harry M. Moses (left) of Bituminous Coal Operators Assn. shakes hands with United Mine Workers' John L. Lewis. Miners gained \$2 per day wage hike.

Now—here's  
real fire prevention  
for your plant . . .

## New Fire- Resistant

### Gargoyle NYVAC Hydraulic Fluids



Do you use hydraulic machines near furnaces, molten metal pots, red-hot steel slabs or other sources of ignition? If so, with oil in service, you have the possibility of a fire that could badly cripple your production.

New fire-resistant Gargoyle Nyvac hydraulic fluids will help prevent such fires.

There are two types of these fluids—a straight synthetic fluid and a synthetic water base fluid. Both have been thoroughly proved in the field. Your particular machines and operations will dictate which product is best for your plant.

Although synthetic in composition, these new products are still designed to keep your machines running on full production schedules with low maintenance costs. They are backed by Socony Mobil's complete engineering service.

The new Nyvac fluids round out Socony Mobil's complete line of top-quality hydraulic fluids—all available from a single source of supply. Call your Socony Mobil man for complete details.



**Socony Mobil** *Correct Lubrication*

**FIRST STEP IN CUTTING COSTS**

SOCONY MOBIL OIL CO., INC., and Affiliates: MAGNOLIA PETROLEUM CO., GENERAL PETROLEUM CORP.



## Commercial Jets Boom West Aircraft

**Fat backlog of commercial orders is expected by plane builders . . . Douglas and Boeing compete for major orders . . . Most airlines will enter jet program . . . High speeds possible—By R. R. Kay.**

◆ **WITHIN 60 DAYS**, West Coast airplane builders will have a \$1.5 billion commercial airliner backlog—double what it is today!

Behind this prediction: (1) An expected big rush by major airlines to get jet planes. Orders will total about \$600 million. (2) Continued heavy buying of piston-engine and turboprop models.

Vastly speeded-up jet-buying stems from hot competition among airlines. They see big revenue and prestige for jet-equipped lines. At best, regular jet service on U. S. lines is four to five years away. Pressure's terrific to get orders in and production going.

**May Bunch Orders . . .** Orders are sure to come through fast now that two companies are very actively after commercial jet-transport building business: Boeing Airplane Co., Seattle, offering a version of its 707, and Douglas Aircraft Co., Inc., Santa Monica, Calif., with the DC-8.

Boeing and Douglas salesmen are making the pitch of their lives for the business. Talk is persistent that airlines will put all orders with one company to lower the cost per plane.

Boeing seems to hold an inside track. Company just finished a year's flight testing of its prototype. Application is in for Civil Aeronautics Administration certification.

Douglas is now plugging the DC-8's economy and speed—says its overseas and cross-country plane will operate profitably down to 500-mile ranges. Typical flight times: New York-Chicago, 1 hr

45 min; Chicago-Los Angeles, 3 hr 50 min; Los Angeles-New York, 4 hr 50 min; Tokyo-Seattle, 9 hr 2 min; New York-Rio de Janeiro, 9 hr 17 min.

**Who Will Buy . . .** Douglas holds the first firm order, from National Airlines. But the planes won't be built until enough orders pile up to make it pay. Experts guess the break-even point at 80 planes for Boeing or Douglas.

National wants six DC-8's. Price, including spare parts: \$29 million. Will lay out another \$70 million for eight DC-7B piston-engine models, and 12 turboprops (maker not yet chosen).

United Air Lines expects to shell out at least \$125 million for 25 jets. Equally-big orders are in the cards for United's chief competitors: American Airlines,

Pan American World Airways, Trans World Airlines.

Eastern Air Lines, marking time on its turboprop and jet purchases, doubled its DC-7B order: it will pay \$50 million for an additional 20 planes. Also bought: \$20 million worth of latest-model Lockheed Constellations. And Delta-C&S Air Lines upped its DC-7 order by six planes.

**Cargo Orders . . .** Continental Air Lines will buy \$40 million worth of jets or Lockheed turboprops if it gets Civil Aeronautics Board approval for a Los Angeles-Denver-Chicago route.

Air cargo carriers are also sweetening it up for West Coast aircraft builders. New orders for Lockheed 1049-H Super Constellation cargo planes: Slick Airways, Inc., \$11 million; Seaboard and Western Airlines, \$4 million.

Airline expansion dollars are buying more than planes and parts. Plenty of metalworking's products and services go into projects like these: Continental Air Lines will build a \$7 million hangar and office building at its Stapleton Airfield headquarters, Denver. Hangar space, 159,000 sq ft; shops and maintenance, 97,500 sq ft.

United Air Lines is putting \$6 million more into its San Francisco International Airport maintenance base. Added facilities include hangars, maintenance area, shops, flight kitchen, and warehouse.

The whole situation adds up to a possible record boom in aircraft production with the gravy destined for those in on the ground floor.



"Who made this a hot rod?"

ANOTHER EXAMPLE of  
REDUCING COSTS WITH—

# Buhr

## ECONOMATION

Drills, chamfers, spot-faces and individual-lead-  
screw taps 377 master-brake  
cylinders an  
hour gross....



and features electronic  
mechanism for checking broken drills!

This 7-way dial-type hydraulic-feed Buhr Special has a 48"-diameter 7-position power-operated index table, complete with shot bolt. Two parts are loaded per station in each of its seven fixtures. Automatic clamping of fixtures is performed by a power-wrench with torque control.

Electronic mechanism automatically checks two .028" drills. Following each cycle, drill-checking arms swing sensing probes to and from drills. If either drill is broken, special electronic sensing-circuit stops machine and flashes failure-light.



# Buhr

MULTIPLE-SPINDLE  
HIGH PRODUCTION MACHINERY

Find out how Buhr Economation can reduce your production costs. Phone, wire or write us. A consultation with one of our top sales executives will be arranged promptly!

**BUHR MACHINE TOOL CO.**  
ANN ARBOR, MICHIGAN

Solidly Engineered • Precision Built • for World's Leading Manufacturers





## How Hard Were Machine Tools Hit?

**Flood damaged some New England tool plants . . . But most builders escaped without serious harm . . . Industry optimistic . . . Lay July sales dip to vacations and show preparations—By E. J. Egan, Jr.**

♦ **NEITHER** New England flood waters nor news of a drop in the July totals for new orders and shipments seemed to bother machine tool builders very much last week. Although many metal-working plants in Connecticut's Naugatuck valley were put out of commission by high water in the wake of Hurricane Diane, most of the major tool building firms in the state are not in that area.

Even in Woonsocket, R. I., another hard-hit city, the Taft-Pierce Mfg. Co. reported no physical damage to plant or equipment. And in nearby Providence, Brown & Sharpe Mfg. Co. and the Abrasive Machine Tool Co. also escaped unharmed.

From Worcester, Mass., Norton Co., The Heald Machine Co., Arter Grinding Machine Co., Leland-Gifford Co., and O. S. Walker Co., Inc., all said they had no flood difficulties worth mentioning. It was a different story at the Reed-Prentice Corp. plant in Worcester, however. Officials there told of being swamped in 8 ft of water, and estimated that it would be the latter part of September before full operation could be resumed.

**Worcester Plant Hit . . .** The Wyman-Gordon plant in Worcester was seriously flooded also. At press time no reliable estimate was available on when the firm would be back in production. Wyman-Gordon's new plant at nearby Grafton, Mass., was not touched by the storm.

At Springfield, Mass., another flood-ravaged area, the Baush Machine Tool Co.'s plant and equipment were not affected.

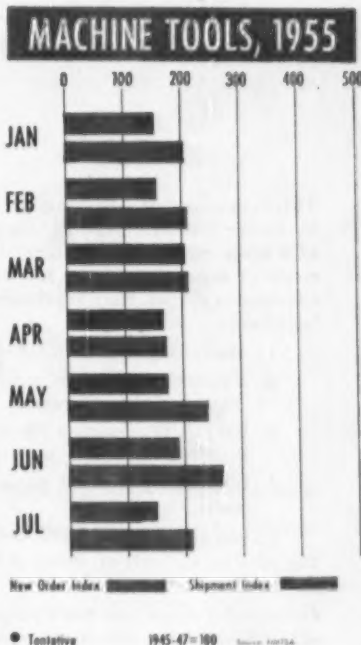
But at the neighboring Van Norman Co., the hurricane's aftermath poured 4 ft of water over the first floor of the manufacturing division. Employees worked around the clock to dry wet motors and machinery, and had the plant back in production.

It was not floods, but time off for summer vacations and Machine Tool Show preparations that apparently caused a slight reaction in new order and shipment totals for the machine tool industry during July. New orders for metal cutting equipment only added up to an estimated \$63.9 million, compared with the June figure (tops for 1955 to date) of \$77.9 million.

**Dip Doesn't Worry . . .** But the July dip doesn't seem to worry builders at all. Especially when they note that new orders for the same month last year were only \$36.9 million.

Machine tool shipments in July showed pretty much the same dip pattern as new orders. They totaled an estimated \$44.9 million compared with June shipments of \$58.8 million. In July last year, shipment billings came to \$60.2 million.

Backlog for the industry at the end of July was estimated at a comfortable 5.4 months. Statisticians at the National Machine Tool Builders Assn.'s Cleveland headquarters furnish this information along with other data, work it out by a formula that takes into account new orders, shipments, and the industry's demonstrated production rate.



**August Outlook . . .** Outlook for machine tool sales and deliveries in August appears to be neither very hopeful nor very pessimistic. Most builders are much too wrapped up in last minute preparations for the Chicago Show to get excited about August business. Those who were willing to venture any guesses told THE IRON AGE that it might well be one of the year's poorer months.

General attitude seems to be that it's illogical to expect many orders for current models when buyers have only a month to wait for so many equipment innovations to be revealed. Builders want to get on with the show.

# REVERE

## Extruded Shapes give HUBER 5 GREAT ADVANTAGES

*—they can do as much for you*

This is the story of a Brazing Torch valve body, made by Huber Industries, Cincinnati 38, Ohio, chiefly out of a brass extruded shape furnished by Revere. As a result of experience Huber has become an outspoken advocate of shapes. Here are the five advantages Huber has found:

1. Machining time reduced 50%.
2. Uniform dimensions mean only one machine set-up for each operation.
3. No rejects whatever. Testing completely eliminated.
4. Uniformity of metal means minimum wear on tools.
5. Buy slugs cut to length, eliminating cutting-off.

The only part of this valve not of brass is the stainless steel conical valve stem.

An extruded shape costs more per pound than standard rod or bar, but the reductions in machining, finishing and other costs much more than make up the difference, and you save money. If you are machining copper and copper-base alloys, or aluminum alloys, get in touch with Revere and learn the advantages of extruded shapes.



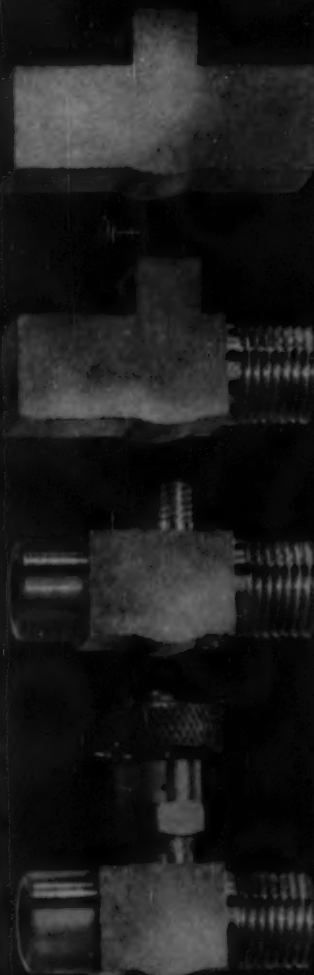
# REVERE

**COPPER AND BRASS INCORPORATED**

*Founded by Paul Revere in 1801*

230 Park Avenue, New York 17, N. Y.

Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y. Sales Offices in Principal Cities, Distributors Everywhere.



Progressive steps in producing valve, beginning with the shape as supplied, cut to length.

Huber Type 100, Model A Brazing Torch.

"The Revere Four-Way Service" is a 16mm sound motion picture in color, educational and informative. If you haven't seen it, write nearest Revere Office.



## The Iron Age

# SALUTES

**Janet Briggs** A highly educated metallurgist, a talented writer, a gifted linguist and a storehouse of molybdenum facts, Dr. Briggs has become a key figure in educational selling at Climax.

"Who is she?" Sweden's Professor Hultgren had inquired about an obscure metallurgical reference. Inside 30 seconds, Janet Briggs found the right publication and spotted the reference. The professor was left gaping with admiration.

This reaction is not uncommon among those meeting the beautifully gifted director of technical information at Climax Molybdenum. Dr. Briggs collects and disseminates facts on molybdenum. She has read everything written on the subject in any language, can dig up the minute details in seconds. She has written for booklets, brochures and bulletins, is co-author of *Molybdenum: Steels, Irons, Alloys*—called the bible of the industry. Vast knowledge and the ability to put information in readable form make her a key figure in educational selling.

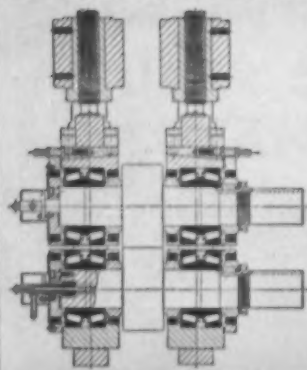
Speaking of her technical qualifications, one man said: "I'd hate to be a metallurgist competing against her." She holds engineering degrees from Stanford U., received a doctorate in mining science from the University of Vienna.

At one meeting of the American Society for Metals she filled in for a sick speaker and delivered a lecture on S-curves. She can talk technical matters with anyone but is not buried in science. Practical business details like obtaining bill discounts and saving on mailing postage receive her alert attention. She is versatile, energetic and conscientious.

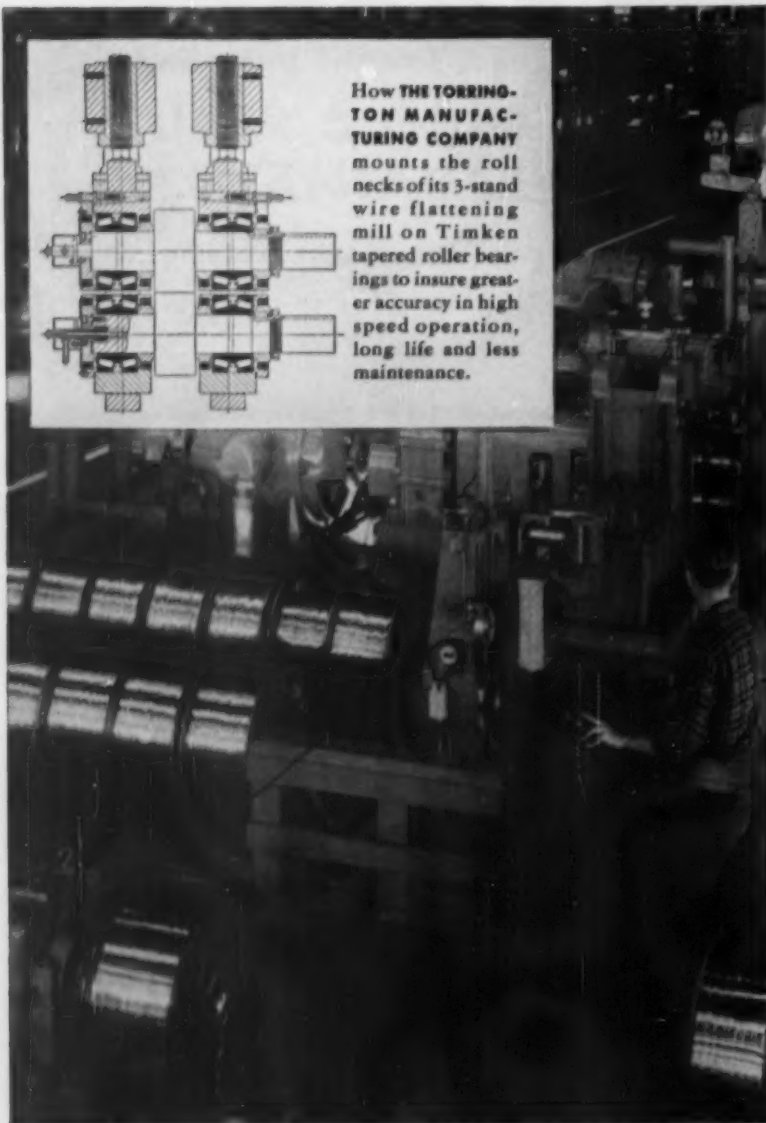
Dr. Briggs was born in California, daughter of a western sheriff. She flew a primitive plane as a girl and at Stanford was selected as one of 10 high-I. Q. students whose future lives would be followed as part of a psychiatric study. She studied and worked abroad, spent 8 years with Crucible Steel before coming to Climax. Some burly executives were a little slow accepting the idea of a woman metallurgist but Dr. Briggs convinced them all. "Biggest mistake I ever made," said one who could have hired her.

For all her man-sized duties, Janet Briggs is thoroughly feminine and sociable. She keeps two cats, likes opera, is active in club work.

# New wire flattening mill accurately shapes 2000 feet of wire per minute ...with help of TIMKEN® bearings



How THE TORRINGTON MANUFACTURING COMPANY mounts the roll necks of its 3-stand wire flattening mill on Timken tapered roller bearings to insure greater accuracy in high speed operation, long life and less maintenance.



THE 3-stand wire flattening mill pictured at left, in operation at the Ansonia, Conn. branch of The American Brass Company, rolls up to 2000 feet of brass or copper wire per minute. It reduces the wire and changes its shape by rolling both flatwise and edgewise. To maintain accuracy at high speeds, The Torrington Manufacturing Company uses 62 Timken® tapered roller bearings on the roll necks and on the reduction drives.

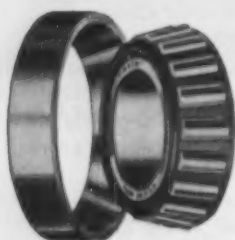
Timken bearings hold the roll necks rigid, insure greater accuracy in the finished product. That's because Timken bearings take both the radial and thrust loads in any combination. They also reduce the amount of power required to run the mill because the true rolling motion and smooth surface finish of Timken bearings practically eliminate friction.

On the reduction gears, Timken bearings keep shafts in proper alignment, keep gears meshing accurately with a minimum of wear. There's less chance of breakdowns caused by excessive gear wear.

Always specify Timken bearings in the equipment you build or buy. Look for the trade-mark "Timken" stamped on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".



This symbol on a product means its bearings are the best.



**TIMKEN**  
TRADE-MARK REG. U. S. PAT. OFF.  
**TAPERED ROLLER BEARINGS**

## IT'S TIMKEN BEARINGS FOR VALUE!

To get the best value in bearings you may find this simple formula helpful:

$$\text{Value} = \frac{\text{quality} + \text{service} + \text{public acceptance}}{\text{price}}$$

Obviously a big advantage *above* the line gives you more value than a small one *below*. No other bearing can match the uniform high quality, engineering and field service and overwhelming public acceptance you get with Timken bearings.

NOT JUST A BALL  NOT JUST A ROLLER  THE TIMKEN TAPERED ROLLER  BEARING TAKES RADIAL  AND THRUST  LOADS OR ANY COMBINATION 



## The Iron Age INTRODUCES

**P. W. Norris**, promoted to vice-president and director of sales of **Denison Engineering Co.**, Columbus, Ohio.

**D. S. Perley**, appointed controller of **Axelson Mfg. Co.**, Div. of **U. S. Industries, Inc.**, Los Angeles.

**C. J. Theken**, appointed manager of the Die Supply Div., **E. W. Bliss Co.**, Cleveland, and **E. M. Brumagin**, appointed sales manager of Die Supply Div.

**B. E. Meyer**, appointed to newly-created position of general service manager, **E. W. Bliss Co.**, Canton, Ohio.

**C. T. Miller**, appointed controller, Mackintosh-Hemphill Division, **E. W. Bliss Co.**, while **E. S. Daniels** was appointed divisional chief accountant; and **N. A. Kamp**, appointed assistant personnel manager.

**H. V. Williams**, appointed manager of Advertising Dept., **The New Britain Machine Co.**, New Britain, Conn.

**R. E. Bastian** named manager of the Mechanical Building of **The Firestone Tire & Rubber Co.**, Akron, Ohio.

**F. H. Stieler**, appointed sales engineer Extrusion Products for **Jones & Laughlin Steel Corp.**, Pittsburgh.

**J. W. Leber**, appointed division industrial engineer — raw materials, **Jones & Laughlin Steel Corp.**, Pittsburgh.

**E. B. Van De Mark**, appointed manager, production control, and **Edward Hauprich, Jr.**, manager, customer service, at Watervliet, N. Y. plant of **Allegheny Ludlum Steel Corp.**

**K. V. Dawson**, named sales engineer, **Kaiser Steel Corp.**'s Napa Fabricating Div. Plant, Napa, Calif.

**Louis Martin**, named general sales manager of the Westinghouse Electronic Tube Div., **Westinghouse Electric Corp.**, Elmira, New York.

**Jack McCann**, appointed Government sales manager of Washington, D. C. office and **Jack Errion**, named sales promotion manager of **Letourneau-Westinghouse Co.**, Peoria, Ill.

**M. B. Harrison**, appointed district vice-president of Intermountain Sales District for **Columbia-Geneva Div.**, **U. S. Steel Corp.**, San Francisco.

**J. M. Dutton**, appointed aircraft application engineer for midwest sales region, **Vickers, Inc.**, Detroit.

**C. H. Case**, appointed division manager for **Kaiser Engineers Div.**, **Henry J. Kaiser Co.**

## PERSONNEL



**BENNETT BURGOON, JR.** has been appointed sales manager of **Kennametal, Inc.**, Latrobe, Pa.



**M. A. MILLER**, elected vice-president and treasurer of **Joseph T. Ryerson & Son, Inc.**, Chicago.



**R. N. CARLEN**, elected vice-president of **Joseph T. Ryerson & Son, Inc.**, Chicago.



**J. N. CANDLER**, appointed vice-president and plant manager of **Detroit plant of Morse Chain Co.**

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H. L. Ross, appointed assistant manager and C. L. Babb, appointed chief engineer, **Allis-Chalmers Mfg. Co.**, Milwaukee.

J. H. McGraw, appointed assistant district manager for the Cleveland district of **Vanadium Corp. of America**.

D. C. Wycoff, named manager of Product Adaptation Dept., **Clark Controller Co.**, Cleveland.

P. T. Smith, promoted to manager of accounting at **Temco Aircraft Corp.**, Dallas, Texas.

Alexander Shearer, appointed assistant to operating vice-president, **Wheeling Steel Corp.**, Wheeling, W. Va.

L. J. Wilson, named assistant comptroller of **Wheeling Steel Corp.**, Wheeling, W. Va.

C. F. Ivins, Jr., appointed assistant manager of electrical sales at **Hanson - VanWinkle - Munning Co.**, Matawan, N. J.

R. N. Lynch, appointed general sales manager of **Park Chemical Co.**, Detroit.

R. T. Crumley, named sales manager of Toledo Porcelain Enamel Products Co., Toledo, a subsidiary of **Bettinger Corp.**, Waltham, Mass.

L. A. Ringman, appointed fabrications manager at the Claymont, Delaware, plant of the **Colorado Fuel and Iron Corp.**'s Wickwire Spencer Steel Division.

R. F. Harvey, elected as executive vice-president and assistant to the president and A. P. Miller, elected executive vice-president for the Steel Div. and executive vice-president and general manager of **Newport Steel, Merritt-Chapman & Scott Corp.**, New York.

## **PERSONNEL**



C. F. SAWYER, appointed works manager of Latrobe Mill of **Vanadium-Alloys Steel Co.**, Latrobe, Pa.



J. B. PROCTOR, appointed general manager of Fence Metal Products Div., **Alan Wood Steel Co.**, Conshohocken, Pa.



A. R. ALMQUIST, elected secretary of **Tube Reducing Corp.**, Wallington, N. J.



T. E. SNYDER, appointed manager of advertising and sales promotion, **Exide Industrial Div.**, The Electric Storage Battery Co., Philadelphia.

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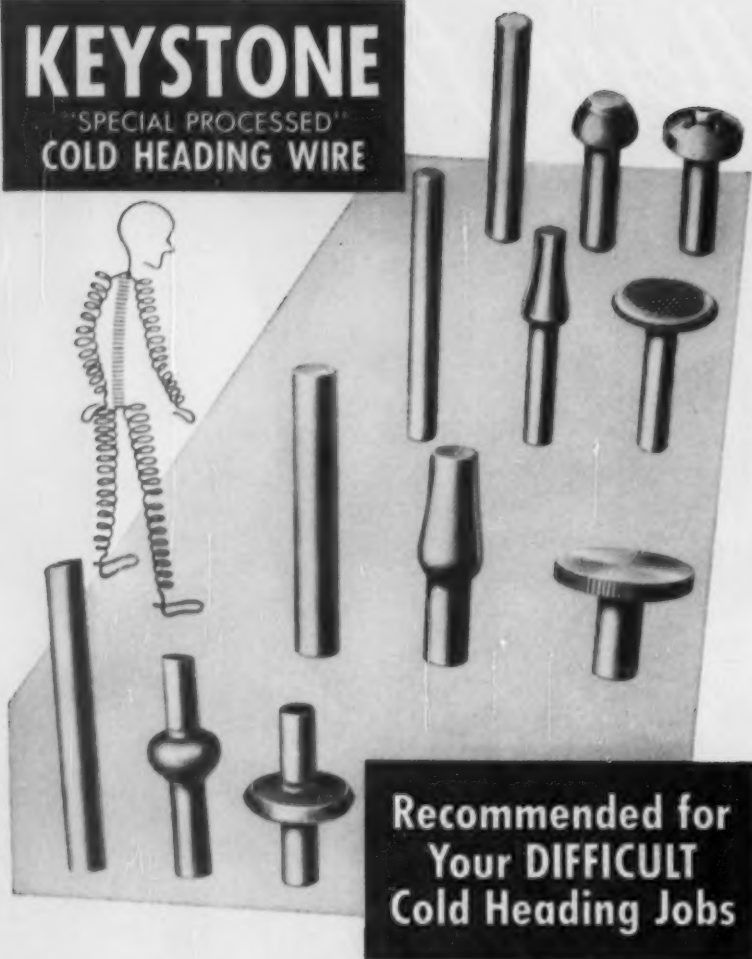
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## PERSONNEL

**V. J. Powers**, elected president and general manager of **Accurate Bushing Co.**, Garwood, N. J.

**G. P. Larson**, appointed vice-president of **Oxy-Catalyst, Inc.**, Wayne, Pa.

**C. A. Marlowe**, elected executive vice-president of **Pittsburgh Metals Purifying Co.**, Pittsburgh.

**R. J. Arft**, appointed vice-president and assistant to the president of **Servel, Inc.**, Evansville, Ind.

**T. M. Creel**, appointed sales engineer for **Cambridge Wire Cloth Co.**, Cambridge, Md., with headquarters in Atlanta, Ga.

**W. L. Flanders**, appointed works manager of **Wales-Strippit Corp.**, North Tonawanda, N. Y.

**J. E. Butler**, appointed field sales manager of **Atkins Industrial Div.**, **Borg-Warner Corp.**, Indianapolis, Ind.

**E. G. Nikoden**, named sales manager for **Industrial Div.**, **Parker Sweeper Co.**, Springfield, Ohio.

## OBITUARIES

**E. Von Hambach**, 62, research and development engineer, **The Carpenter Steel Co.**, Reading, Pa.

**H. J. French**, 62, vice-president of **International Nickel Co., Inc.**, and assistant vice-president of **International Nickel Co. of Canada, Ltd.**

**D. G. Hawsworth**, vice-president and chief engineer, **Gairing Tool Co.**, Detroit.

**R. G. Emrick**, 39, president of **Ettco Tool Co., Inc.**, Brooklyn, N. Y.

**H. G. Josephson**, president, **Eastern Tool & Stamping Co., Inc.**, Cossaugus, Mass.





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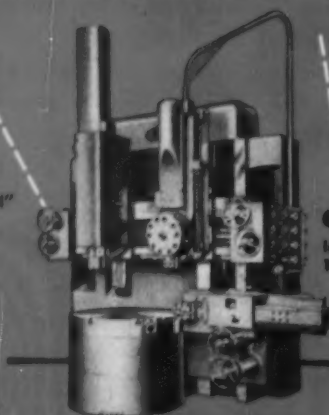
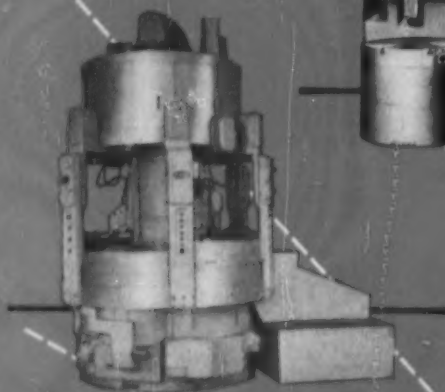
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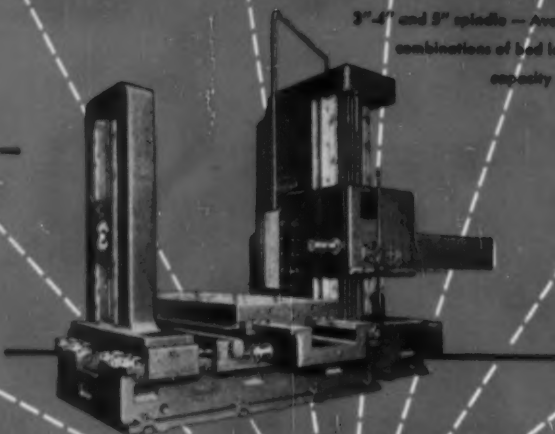
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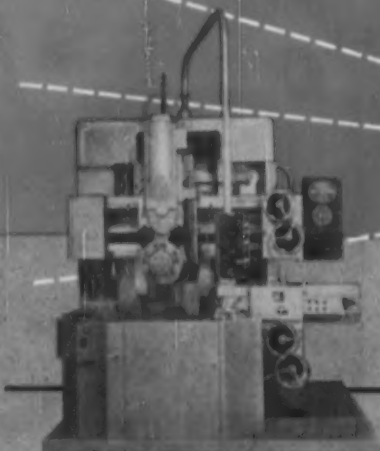
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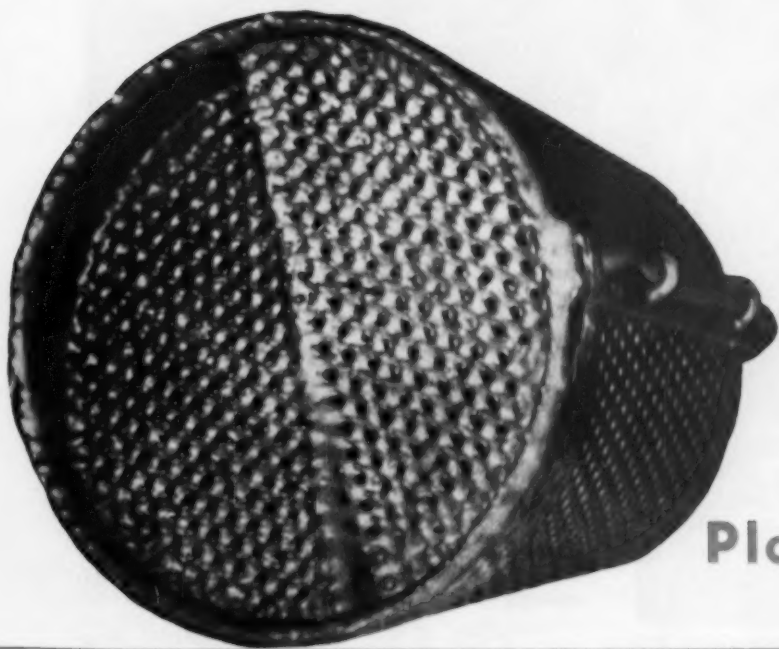
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**Flexible schedule helps—**



## In-Plant Plating Moves

### Diversified Product Line Faster

♦ Lower plating costs, substantially reduced inventory and greatly improved service to customers are the primary benefits of an in-plant zinc barrel plating installation at the Unistrut Corp. . . . The automatic line has cut down a 5 to 7-day minimum delivery time to a few hours.

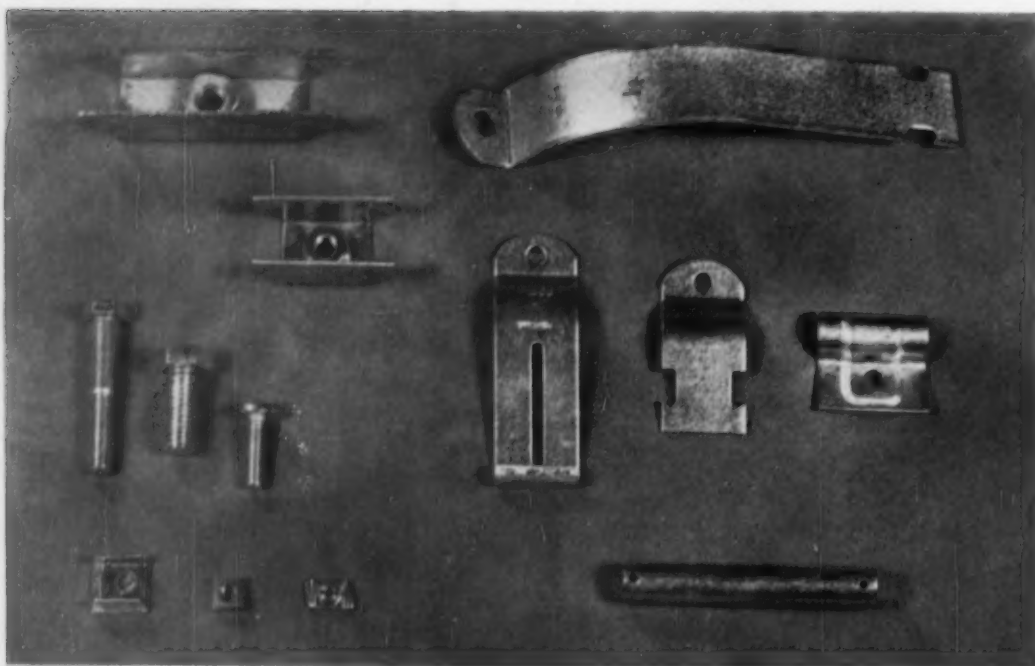
♦ From 1500 to 2000 different fittings receive at least a 0.0002-in. thick plate . . . About 50 to 60 different parts are plated in the regular daily schedule . . . Flexibility in scheduling permits special rush orders to be handled promptly.

♦ A RAPIDLY expanding business like that of the Unistrut Corp., Wayne, Mich., has the triple duty of (1) maintaining adequate parts service to its growing number of outlets, (2) keeping pace with the mushrooming demands of a variety of metal framed structures, (3) holding (or reducing) the cost line while meeting the increasingly exacting and specialized requirements of its customers.

The firm makes channels and all other component parts for a structural system which requires only a wrench and hack saw to assemble. No welding or drilling is necessary for constructing anything from storage shelves to transportable commercial buildings and even school houses.

Steel channels and their fittings are 100 pct reusable—but a major percentage of the fittings must be adequately protected by zinc plating.

By W. G. PATTON, Asst. Technical Editor



**THESE PARTS** are only a few of the 1500 to 2000 fittings which make up a complete structural system. Each gets an 0.0002-in. minimum plate.

Unistrut steel channel has a continuous slot. Where attachment is desired, a zinc-plated nut is slid in position in the bonderized and painted channel.

Eleven basic channel sizes are made in four different steel gages. However, these channels can be used to form many combinations. Hundreds of special fittings—from 1500 to 2000 different kinds—of standard nuts, clamps, plates, brackets and angles permit considerable flexibility in structural design.

These standard fittings simplify the job of erecting pallet or skid racks, die racks, electrical and mechanical equipment supports, ceiling supports and entire commercial structures like warehouses and buildings.

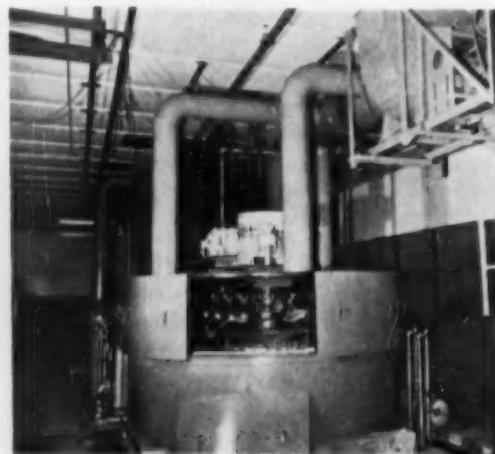
#### **Setup adds speed, flexibility**

Until recently, Unistrut sent all of its plating work out to commercial shops. However, to add speed and flexibility to its customer service, plus the requirement of meeting a growing number of customer and government specifications, led to the installation of a Frederic B. Stevens automatic barrel plating machine.

Thousands of parts daily, including plates up to 18 in. long, are now being plated on regular schedules. Where required, scheduled runs are interrupted and several barrels of miscellaneous parts are loaded in the machine. In this way, 50 or 60 different parts can be run in a day, including special rush orders.

Since the Unistrut system is used both by the government and private industry, quality control is of vital importance. Specifications call for a minimum thickness of 0.0002 in. of zinc plate on all parts and the minimum on some parts is 0.00035 in.

Versatility of the automatic equipment provides a number of advantages. In addition to reduced plating costs, which have been cut as much as 50 pct for some parts, it is now possible to have plated parts in their shipping containers four hours after coming from the press shop. Previously, a minimum delay of 5 to 7 days was common. Needless handling expense for loading,



**ZINC-PLATING** end of the automatic machine is enclosed to confine fumes and vapors. Exhaust system expels them to the outdoors.

unloading and trucking has also been eliminated.

As a direct result of this greater flexibility, there has been a reduction of 20 pct or more in the value of parts carried in stock. This has released floor space sorely needed for expansion of operations.

#### Cycles changed easily

Operation of the automatic plating machine is simple. The drive mechanism consists of single-speed electric motors with gear reductions to provide motive power for transfer and rotation of perforated barrels. All barrels are coated with Koroseal.

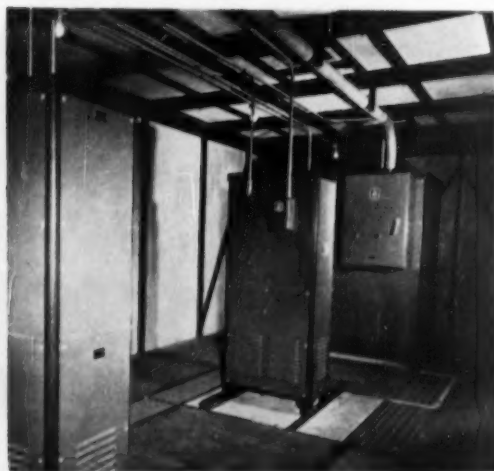
The plating barrels are attached to carriers suspended from the conveyor chain. They are moved by an indexing movement along the track mechanism by means of the sprocket and gear reduction drive assembly. As the arm moves along the track, a bronze gear on the arm engages a longitudinal worm which is also driven by the motor which rotates the barrel.

Hump-type cams lift the barrels during transfer. If a change is desired in the processing cycle, the cam can be moved or another one may be added. If a treatment is to be eliminated, a standard skip bracket attachment is used to bypass any particular tank.

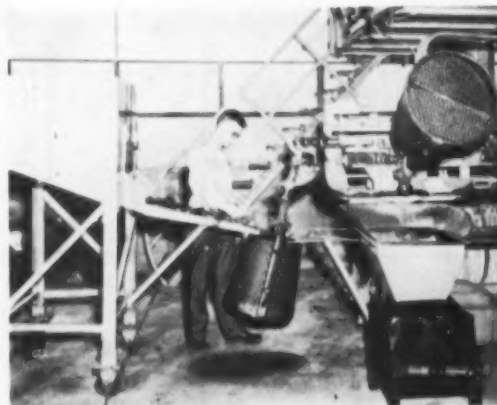
#### Grouping helps schedule

Variation of the timing is provided by a simple adjustment on the control panel which is elevated so that it can be seen by the operator loading the machine. To minimize changes in the cycle, parts are grouped in the working schedules. Schedules are usually set a week in advance but are subject to interruption at any time if a special run is required. This is done with little loss of production.

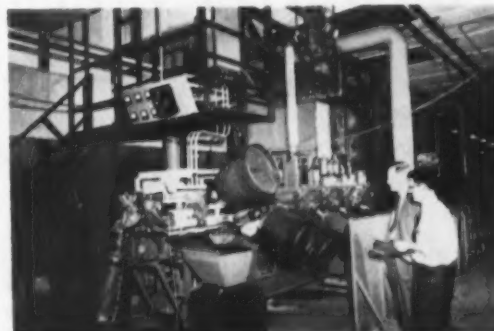
The equipment has been unusually free from interruption. Except for normal oiling, greasing



**PENTHOUSE** above plating machine is cooled by air system, thus providing longer service life for rectifiers. It is of Unistrut construction.



**OPERATOR** feeds parts into one barrel as another unloads automatically. Loading operation can be made automatic if desired.



Above: **AUTOMATIC** barrel plating of component parts of structural system saves as much as 50 pct in plating costs. Penthouse above houses rectifiers.

and painting, maintenance expense has been exceptionally low.

At the Wayne plant, 500, 750 and 1000-amp rectifiers are placed in a small pent house on the roof. Air taken from outside the building is blown through filters and over the rectifiers. This location above the normal dust level of the plant adds considerably to the service life of the rectifiers and reduces down time. Maintenance expense is estimated to have been reduced at least 80 pct by this arrangement.

#### Air system exceeds needs

Capacity of the air system is about four times that required for the rectifiers. It provides for adequate cooling even if dust or lint should accumulate. Rectifiers have been examined regularly during the past year but no maintenance has been required.

The stairway, supporting steelwork for the control panel and the framework for the penthouse which houses the rectifiers was built entirely by the Unistrut construction system. The structure was erected in a minimum amount of time.

**Improves structures—**

## Heat Treating:

**Rx**

## For Better Machinability

By F. J. ROBBINS, President, Sierra Drawn Steel Corp.,  
and J. J. LAWLESS, Metallurgist,  
Metallurgical Consultants, Inc., Los Angeles, Calif.

♦ Plain carbon and alloy steels are machined more efficiently after heat treating . . . Surface finish is improved at higher speeds and feeds, depending upon metallurgical structure . . . Understanding the "ductility-strength" relationship helps solve many machining problems . . . Some control of this relation can be gained by special heat treatments . . . This article—based on shop experience—tells how heat treating provides better machinability.

♦ USERS of carbon and low alloy steels know that manufacturing costs can be lowered by faster, more efficient machining. Such economy must be gained without sacrificing product quality. This points logically to improving the machinability of the steels used. Heat treatment is usually the easiest and most practical method for accomplishing this objective.

Many alloy steels are difficult to machine,

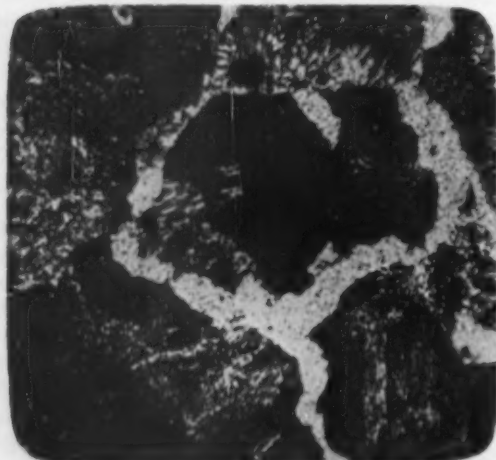


FIG. 1—Coarse lamellar pearlite with heavy ferrite in the grain boundaries. This material machined poorly and cut tool life. 100X.

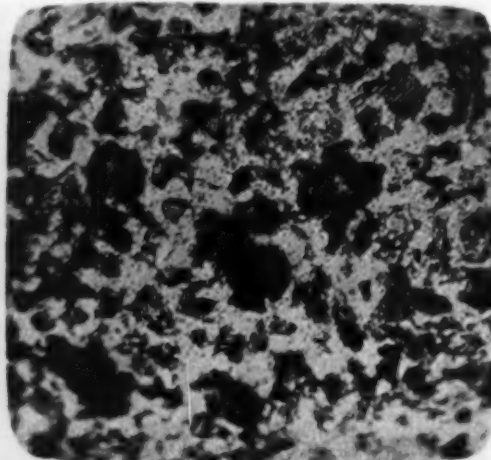


FIG. 2—Uniform pearlite, 40 pct spheroidized, provided good machining, longer tool life. 100X. Material combines fine grain size and uniformity.



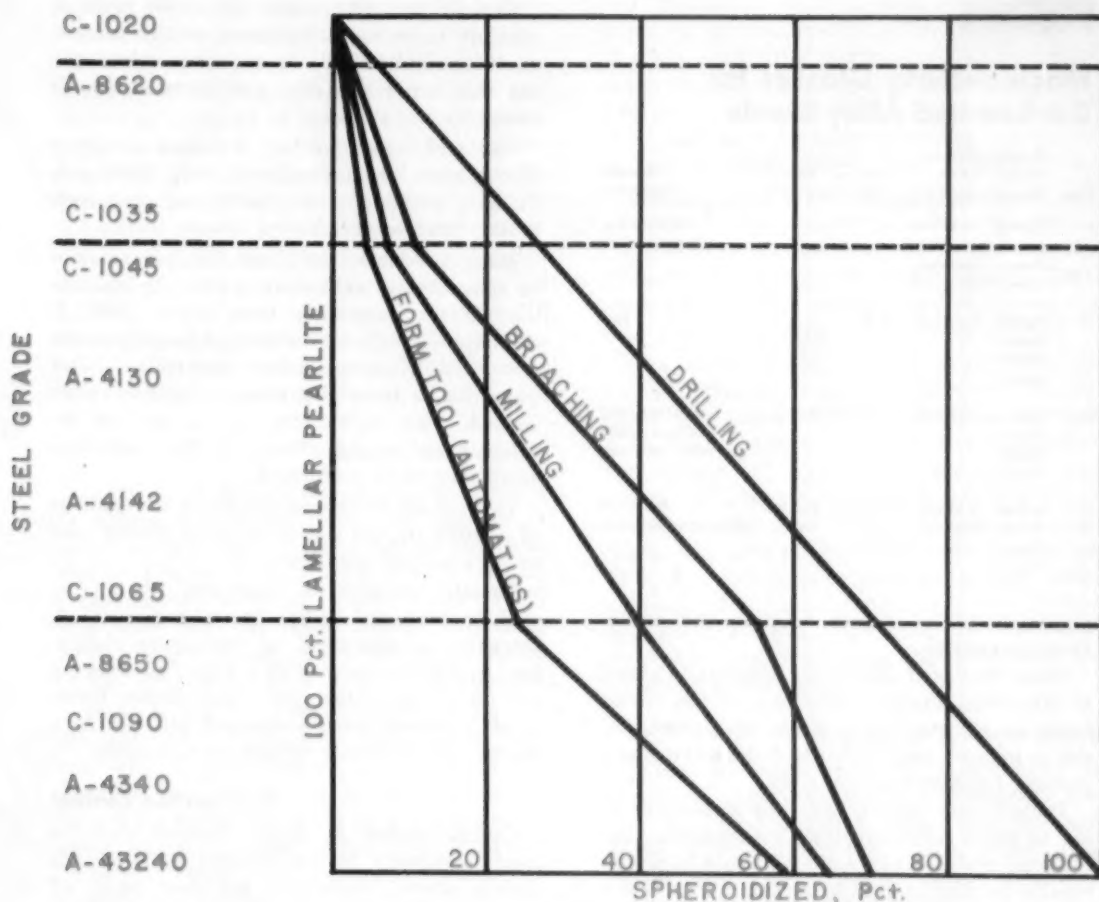


FIG. 3—Degree of spheroidization recommended for various steels and machining operations.

but superior mechanical properties require their use. Fortunately, the machinability of most alloy steels can be improved to some degree of heat treating.

Heat treating is not offered as a "cure all." Certainly it has its limitations. The equipment it requires must be able to increase production rates if it is to pay its way. Unit savings that might be realized because of heat treating must be measured in terms of sufficient production to yield significant total savings. This might rule out heat treating where the parts processed are few in number.

Evaluating machinability starts with the machine tool. The tensile strength of the material determines the force the tool must exert to separate chip from stock. The ductility of the material controls the movement of the chip. Unfortunately, ductility and tensile strength are conflicting properties. Treatments which might decrease ductility could increase

tensile strength and thus magnify this effect.

A ragged and inferior finish can result from the plastic flow of the chip before it is broken free of the stock. This can be the case when a material has rather high ductility and low tensile strength. High tensile strength and low ductility mean severe stress and wear on the tool, thus reducing tool life.

The tensile-ductility relationship is the crux of most machining problems. Some control of this relation can be gained by special heat treatments. Additions of certain alloying elements and metalloids can also provide control.

#### Sulphur aids machinability

Increasing the sulphur content in steel materially improves machinability by creating non-metallic discontinuities which tend to break up the chip in machining. The sulphur does not seriously affect longitudinal tensile strength. Its principal disadvantage results from a lowering of transverse and impact properties.

Other addition agents such as lead, phosphorus and selenium also affect machinability. All are dependent upon the creation of discontinuities for their effectiveness. All invari-

## Machinability Classes for Carbon and Alloy Steels

| Class | Ductility-Tensile Relation         | Carbon Steels, pct C                   | Lean Alloy Steels | High Alloy Steels, pct C | Treatment Possibilities   |
|-------|------------------------------------|--|-------------------|--------------------------|---|
| I     | Ductility (Up)<br>Tensile (Down)   | Low carbon, openhearth, bessemer, etc. | ....              | ....                     | Cold drawing; water quenching.                                    |
| II    | Ductility (Same)<br>Tensile (Same) | 0.25-0.35                              | 0.20              | ....                     | None  |
| III   | Ductility (Down)<br>Tensile (Up)   | 0.35-0.55                              | 0.25              | 0.20                     | Anneal to lamellar pearlite; or partially spheroidize. Cold draw. |
| IV    | Ductility (Same)<br>Tensile (Up)   | 0.55 and over                          | 0.35 and over     | 0.25 and over            | Part to fully spheroidize. Cold draw.                             |

ably tend to lower both ductility and transverse properties.

Since the use of alloy steel is normally aimed at improving ductility and raising the transverse properties, the creation of discontinuities to improve machinability defeats the major purpose for selecting the steel.

Table I rates carbon and alloy steels according to their tensile-ductility relationship.<sup>2</sup> Increasing carbon and/or alloy content normally results in higher tensile strength and lower ductility.

Both a 0.30 pct carbon straight-carbon steel and a 0.20 pct carbon lean-alloy steel may be expected to machine satisfactorily without special heat treatment, according to Table I. Use of these grades is limited by field service requirements. For applications requiring material of higher or lower properties, some adjustment must be made to obtain both proper tensile-ductility relation and better machining.

Several heat treatments for steels make it possible to obtain adjustment of the tensile-ductility relationship. In bar form, cold drawing will lower ductility and increase tensile strength only slightly.

The cold drawn bar has a crisper structure which parts from the stock with little preliminary yielding in the machining operation. Better finishes with higher speeds result.

Many products, including forgings, cannot be conveniently cold worked prior to machining. Water quenching from about 1500° F can improve the machinability of forgings made from C-1018 and similar materials. After quenching, a tempering cycle is included when needed. The desirability of the process depends upon the complexity of the machining operations to be performed.

Table II shows typical physicals for samples of C-1018 in the as-rolled, cold drawn and water quenched conditions.

Tensile strength is increased 13 pct by cold drawing and 58 pct by water quenching. Ductility, as measured by percentage elongation in 2 in., is reduced 23 pct by cold drawing and 76 pct by water quenching. Either treatment increases tensile strength but not to a degree that seriously affects machinability.

### High carbon content

Carbon content is at an optimum level for good machining in the straight 0.25-0.35 pct carbon steels, producing the best ratio of strength to ductility in the air cooled condition. The structure of these materials is largely ferritic with some low strength pearlite when they are air cooled from the rolling mill or forging temperature.

The introduction of alloy into the 0.25-0.35 pct carbon grades results in higher ductility. These steels no longer possess optimum machinability unless other factors are controlled to limit detrimental changes in the tensile-

## Average Properties of C-1018

|                          | Hot Rolled | Cold Drawn | Water Quenched, 1625°F |
|--------------------------|------------|------------|------------------------|
| Tensile Strength, psi    | 69,000     | 78,000     | 109,000                |
| Yield Point, psi         | 47,000     | 53,000     | 85,000                 |
| Elongation, pct in 2 in. | 30         | 23         | 7                      |
| Reduction in Area, pct   | 66         | 64         | 23                     |
| Brinell Number           | 143        | 168        | 225                    |

## Average Properties of C-1045 and C-1085

|                          | C-1045            |                              |                               | C-1085            |                              |                               |
|--------------------------|-------------------|------------------------------|-------------------------------|-------------------|------------------------------|-------------------------------|
|                          | Lamellar Pearlite | 25 pct Spheroidized Pearlite | 100 pct Spheroidized Pearlite | Lamellar Pearlite | 25 pct Spheroidized Pearlite | 100 pct Spheroidized Pearlite |
| Tensile Strength, psi    | 87,400            | 85,700                       | 82,500                        | 119,540           | 93,150                       | 104,620                       |
| Yield Point, psi         | 51,900            | 43,050                       | 42,750                        | 55,300            | 43,150                       | 45,940                        |
| Elongation, pct in 2 in. | ....              | ....                         | ....                          | 19.8              | 21.3                         | 27.4                          |
| Reduction in Area        | 47.5              | 49.5                         | 56.0                          | 9.5               | 17.5                         | 29.6                          |
| Brinell Number           | 196               | 180                          | 171                           | 197               | 183                          | 186                           |

ductility relation. Best machining characteristics are obtained without heat treatment only when the carbon is within 0.20-0.25 pct.

All of the steels in Class III (Table I) are subject to a degree of hardening when cooled from austenitizing temperatures. The carbides occur in pearlite, bainite, and martensite. These materials may be somewhat difficult to machine even after proper heat treatment.

Treatments designed to produce a pearlite plus ferrite structure may be satisfactory on the low side of the chemistry for Class III steels. Increasing carbon and/or alloy content tends to produce higher strengths with relatively little effect on ductility.

#### **Reduce fine pearlite**

In this case the object of heat treating is to reduce the proportion of fine pearlite in order to keep the strength within practical limits. The carbides can be spheroidized by reheating the material to about 1275° F, or just below the  $A_{c1}$  temperature. This tends to reduce the volume of the structure affected by the carbides and thus lower tensile strength.

To show the effect of spheroidizing on tensile strength (Table III), tensile tests were run with plain carbon steels containing 0.45 and 0.85 pct carbon. In the annealed condition these steels contained 25 pct and 100 pct spheroidized pearlite respectively. Results show that spheroidizing produced lower tensile strengths in steels of the same analysis.

Tensile strength may still be high after heat treating to produce a wholly pearlitic structure. This can result from the rate of cooling after the anneal and requires further reduction of the lamellar pearlite by spheroidizing. In higher carbon and alloy steels, it may be necessary to obtain 100 pct spheroidization for some machining operations.

Varying the degree of spheroidization controls the proportion of ferrite to pearlite and thus the ductility to tensile strength relationship. This applies especially to those steels in Classes II and IV.

Steels alloyed with carbide-forming elements, such as chromium, can be spheroidized to reduce strength more effectively than can solution-type alloys. The carbide formers are present in the spheroids and have little influence on the structure. Thus, these elements are stabilized to eliminate their influence on the ductility of the ferrite.

Many alloy steels containing carbide forming elements can be heat treated to produce structures nearly as machinable as those obtained in plain carbon steels.

Solution forming elements, such as nickel, remain in solution in ferrite upon heat treatment. The result is higher tensile strength

and increasing ductility with increasing degrees of spheroidization. The machinability of steels containing solution-forming elements, particularly when the carbon content is above 0.40 pct, is a most difficult problem. The answer lies in controlled annealing cycles to produce a highly spheroidized microstructure.

Another metallurgical consideration of importance is the uniformity of grain size in the structure. Coarse grain steels are capable of faster machining and better finishes. They are desirable where field service does not require high impact and fatigue properties.

One other factor may actually outweigh the importance of coarse grain size in its effect upon machinability. A series of tests were run and results catalogued on 25 production orders set up on automatic screw machines. The material was a 0.40-0.50 pct carbon, lean alloy steel. When the structure contained extensive ferrite in the grain boundaries (Fig. 1), even though the material was coarse grained, poor machinability was usually experienced. Material combining fine grain size and structural uniformity (Fig. 2) proved generally satisfactory.

#### **Require uniform structure**

It can be concluded that machinability is sometimes more sensitive to intergranular ferrite than to grain size. Apparently the tool tends to load up in the ferrite areas. This makes the uniform dispersion of carbides a prime objective in heat treating.

There are many opinions regarding the effect of various structures on specific machining operations such as milling, broaching, drilling, etc. Two generalizations usually hold true. Uniformity of structure and suitable grain size are almost always required. Special additions to the steel analysis for a specific operation may be highly desirable.

Drills will usually perform best in highly spheroidized structures, especially in the higher strength alloys. A broach would tend to load up in a highly ductile structure, and instances have been observed when such structures pulled teeth out of the broach.

In a 4140 steel it is possible to obtain a full range of microstructures by annealing. The condition must be established for any machine operation. A microstructure consisting of 20 pct spheroidized material with the balance lamellar pearlite might be desirable for a form tool operation on an automatic screw machine. Drilling might require a much higher degree of spheroidization for best machine efficiency. A planning operation on this material would be favored by a 100 pct pearlitic structure.

Fig. 3 shows those structures which have been judged on the basis of experience to give best performance in machining.

*In sintering plants—*

## Reduced Turbulence Boosts Dust Collector Efficiency

♦ Collecting sinter effectively can boost a sintering plant's profits . . . This recently installed collector has increased sinter accumulation at a surprising rate.

♦ Operating costs for the new collector are low—principally the cost of electricity to drive a single 1000 hp motor . . . Lower maintenance provides further economies.

By C. A. GALLEAR,  
Asst. Chief Engineer,  
Buell Engineering Co., Inc.,  
New York



FIG. 1—Combustion air is drawn through bed of Dwight-Lloyd sintering machine by fan.

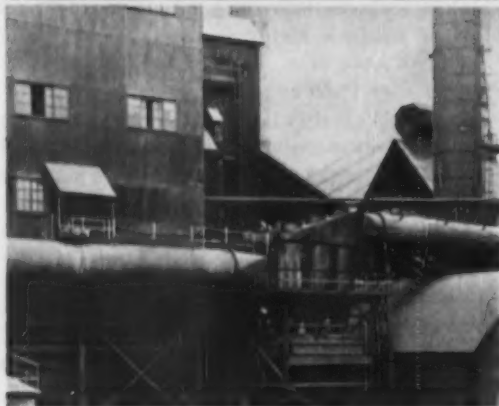


FIG. 2—Collector separates sinter dust from gases before exhausting them to atmosphere.



◆ SAVINGS of more than \$1500 monthly, as well as an overall efficiency of 92.5 pct, are achievements claimed for a dust reclamation system installed at one of the world's largest sintering plants. Located at a Pennsylvania steel mill, the system is estimated to be at least 5 pct more efficient than conventional collectors.

The high degree of efficiency results in additional collections of some \$700 worth of sinter monthly. Operating costs are less and reduced maintenance requirements result in still further savings.

The dust collector—designed, built, and installed by the Buell Engineering Co., Inc., New York—is made up of six cyclone-type units arranged in the shape of a large "V". Each cyclone receives an equal portion of the nearly 85,000 cfm of exhaust gas from the sintering machine.

The sintering machine, shown in Fig. 1, is a Dwight-Lloyd type. It is 6 ft wide and approximately 83½ ft long, with a bed 8 to 10 ft deep. The sinter mix is made up of concentrated ores, screened ores, flue dust, and other materials such as manganese residuum and dolomitic sand. The mix is belt-conveyed to a hopper located above the sintering machine and fed onto the machine's traveling grate.

The bed is ignited by blast furnace gas. Air

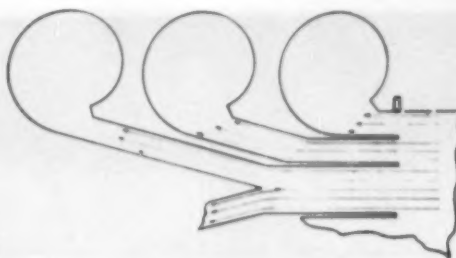
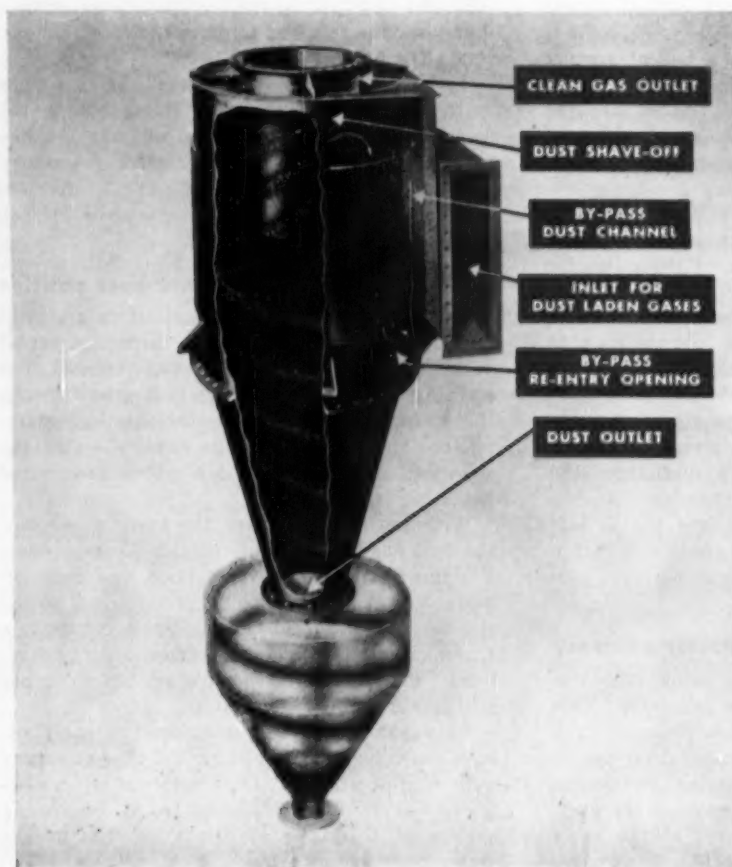


FIG. 3—Gas enters cyclones tangentially via split duct manifold without pressure loss.

is drawn through the mass as it moves along, causing it to burn down to the grate. The combustion air picks up sinter as it is drawn through the bed. Heavy particles are removed in a plenum chamber beneath the sintering machine. From this chamber air flows into a bustle pipe and thence to the collector (Fig. 2).

At the collector, a split-duct manifold (Fig. 3) allows the gas to enter the cyclones tangentially and without loss of pressure due to change in direction. Within the cyclones, the solids are thrown by centrifugal action to the cyclone wall. The air flow pattern is a descending helix at the



(Left) FIG. 4 — Specially designed "shave-off" port provides immediate outlet for fines.

FIG. 5—This 1,000 hp fan draws air through both the sintering machine and collector.





FIG. 6—Cyclone lining is made of abrasion-resistant refractory easy to maintain.

cylinder periphery. It carries the dust downward and discharges it through conical outlets into the hopper below.

The cleaned gas ascends in a helical manner at the center of the cyclone and leaves through the outlet pipe which extends down into the cylinder. From the hopper, the reclaimed fines are conveyed back to the sintering machine.

The major factor in providing greater collector efficiency is a narrow vertical rectangular port in the upper portion of the collector (Fig. 4). This port provides an immediate outlet for fines which tend to accumulate in eddy currents prevailing in this portion of the collector. These fines are conducted through a by-pass duct to the main body of dust in the lower conical section of the collector.

The collector is properly proportioned to avoid turbulence in counter-flow gas streams. It provides a powerful vortex which discharges the dust properly into the dust chamber. At the same time, it enables the dust-free gas to exit via the outlet duct. Discharged gas is well within standard codes insofar as permissible dust content is concerned.

#### **Increase collector efficiency**

When initially installed, the outlet pipe was extended only partially into the separator. This was done to provide a minimum pressure drop across the separator. However, this drop was so much lower than that of conventional reclaiming systems that it was decided to lengthen the duct. The duct diameter was increased at the same time, thereby increasing overall collector ef-

iciency. The comparatively small pressure drop (2.5 in.) accounts for the low operating cost since less power is required to drive the large exhaust fan (Fig. 5).

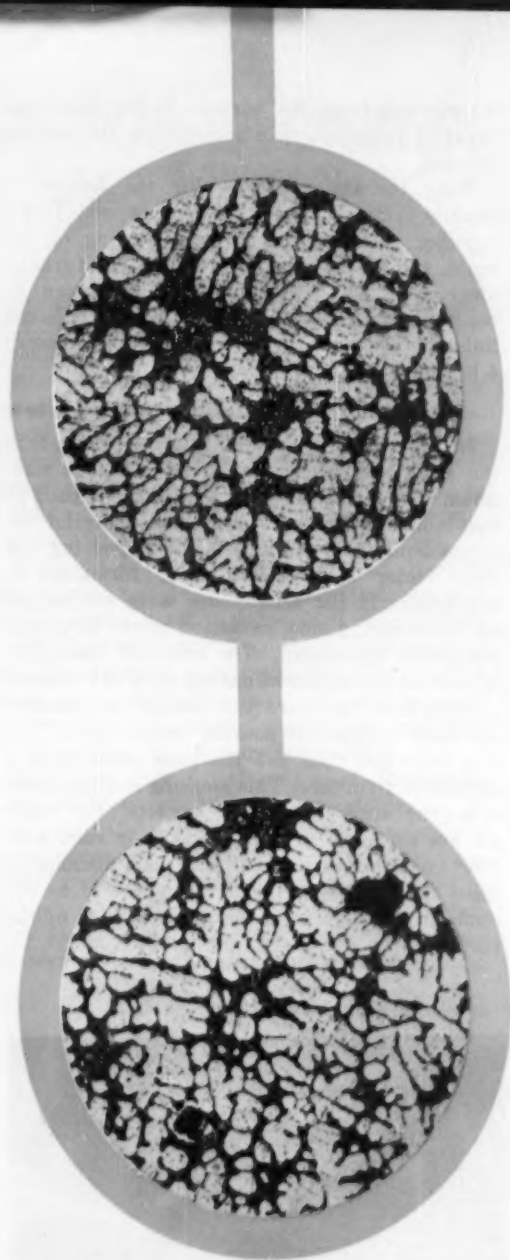
Low maintenance costs are due to the minimum of upkeep of the refractory lining of the collectors. This lining consists of an abrasion-resistant, hydraulic-setting, castable refractory. The refractory is trowled into a reinforcement grating welded to the inside surface of the collector (Fig. 6).

#### **Replace lower cone position**

A number of conventional collectors are lined with refractory brick. At each inspection period (every two weeks) bricks must be replaced. The swirling abrasive stream can still wear through the refractory brick, despite the thorough maintenance schedule. When the metal sides of the collector have been attacked, a rather complicated patch job is required.

With the new collectors, the lower portion of the cone has been the only portion to show wear. For this reason, the lower portion was made removable by means of flanged connections. When the tip begins to show wear, it is removed, a spare substituted, and the removed portion relined. The remaining portion of the collectors still retain their original lining.

This system has been so successful that plans have been made for replacing existing collectors with similar systems. Consideration is also being given to the installation of a reclaiming system of this type at discharge ends of the sintering machines.



A 95 pct Al-5 pct Si alloy shows no appreciable change in structure when poured from the continuous furnace (top) or reverberatory (bottom).

◆ A SPECIAL furnace has been developed that will continuously melt aluminum alloys for casting. Automatically fed ingot is heated by radiant gas burners to provide an endless source of molten aluminum. The process is now in operation at the Monarch Aluminum Manufacturing Co., Cleveland, for the permanent mold casting of household utensils and appliance and machinery components.

Continuous, in-the-line-melting eliminates many of the disadvantages and inefficiencies experienced with conventional melting and pouring. Along with many other foundries, Monarch had been using conventional reverberatory furnaces exclusively. The continuous furnace is faster.

For casting—

## ■ New Radiant Furnace Continuously Melts Aluminum

◆ A radiant, gas-fired furnace melts aluminum more efficiently at less cost . . . Ingot is automatically fed to provide a continuous source of molten metal for casting . . . Minimized heat losses conserve fuel and improve working conditions.

◆ The new furnace provides 2000 lbs of aluminum hourly, with only a few hundred pounds in the molten state at any given moment.

By P. M. UNTERWEISER, Metallurgical Editor

It can produce castings at a rate commensurate with high-speed machining operations. This is an important consideration in balancing shop production schedules.

Hand pouring from the old reverberatory furnaces has always been a brutally tough job in the summer. When the outside temperature soars to the 90's, it becomes increasingly difficult, if not impossible, to maintain a working crew at these furnaces.

Working with the new equipment is a cool job by comparison. Much less heat is lost in radiation to the shop area. This means better working conditions, and a happier working force. Most of all, it means less labor turnover.

The new melting system also helps trim costs by providing better cost control and more efficient use of heat energy. Expensive and wasteful heating of heavy furnace equipment and massive tanks of molten aluminum has been eliminated. The new furnace equipment improves heating efficiency by at least 100 pct. Fuel costs are drastically reduced.

The new furnace design, engineered and built by Selsas Corporation, Philadelphia, is gas fired through radiant-type burners. The furnace slopes downward from the entrance where ingot is fed, resembling a red-hot sliding pond. The actual slope is only about 2 in. per ft from the input to the output end.

The ingots are loaded from a mechanized conveyor belt and pushed under a glowing roof of Selsas Duradient burners. Speed of passage of the ingots through the furnace and fuel input determine both melting rate and pouring temperature. When the ingots are heated to the molten state, the liquid metal pours downward to a feeding ladle. The flow of metal is continuous, depending upon the rate at which ingot is fed. Total heating time is a little under 30 minutes.

The principle of gradation heating is now new. It consists of premixing controlled volumes of propane and air and feeding the mixture to cup-shaped Duradient burners. The mixture is fired within the cup to the point where the ceramic becomes incandescent. Heat energy is

transferred from the burners to the aluminum ingot by radiation, thus accelerating the melting process.

Since the atmosphere within the furnace is slightly oxidizing, some oxides are formed. These, together with the normal oxide coating on the ingot, are floated to a low point in the furnace, away from the operating area. They can be readily removed without harming the adjacent lining. Oxides are normally removed after every 4 hrs of continuous operation.

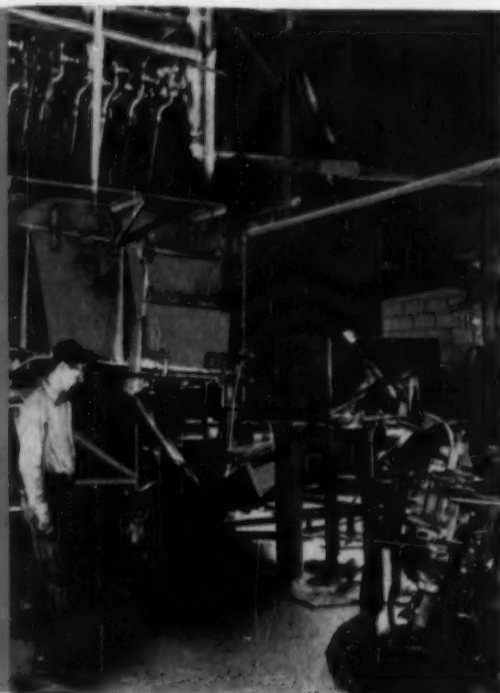
#### Oxide formation is low

In practice, the amount of oxide formed in the actual heating operation is held to a minimum. Oxide formation is limited principally to the molten aluminum. Since the material becomes liquid very near the point of pouring, the time factor for possible oxide formation is negligible. If the atmosphere were maintained on the reducing side, oxidation might be almost completely eliminated. The economic feasibility of such an arrangement has yet to be determined.

Only three hours are required to bring the start up charge of ingot to pouring temperature. This is a little less than 1/7 the time required in a reverberatory furnace. This amazing heating speed is accomplished with only 60 burners. The burners are arranged in four rows, 15 in each row. They cover only the final 1/3 of total distance of ingot travel. Preheating is taken care of by the combustion products in the upper portion of the furnace.



Ingot is automatically conveyed and fed at the entrance end of furnace to provide desired alloy.



Molten metal is caught in a small holding trough and poured in measured amounts to the molds.



Four to six ingots weighing from 35 to 60 lbs are fed at the entry end of the furnace in 5 to 10 minute intervals. This provides a steady flow of metal. The volume of molten metal desired is readily controlled by simply adjusting the rate of charging. A constant pouring temperature is achieved by means of thermocouple control at the pouring ladle. This control element automatically adjusts burner output, increasing or decreasing temperature as required.

Automatic casting of the molten metal from the new furnace is a natural. Permanent molds, mounted on a merry-go-round conveyor, are brought into pouring position. As the mold continues around the circle it is allowed to cool to a point at which the casting may be conveniently removed from the mold.

The casting, together with gates and risers, is then hooked to an automatic roller-link conveyor which carries it off to subsequent cleaning and machining operations. The conveyor system is so arranged as to be within easy reach of all principal processing operations. An operator need only reach out to obtain a casting for processing or return a casting already processed.

Casting quality is uniformly good. Mechanical tests indicate very little, if any, difference between castings poured from the new furnace and those poured by hand ladle from the old conventional furnaces. Gas absorption is minimized by the new furnace's short heat cycle. Grain structure shows a high degree of uniformity as can be seen in the accompanying photomicrographs.

#### No shutdown to change alloys

When a number of different alloys are to be used, the new furnace is sufficiently versatile to meet these requirements. At the end of each run, the alloy can be changed without shutting down the furnace. All that is required is a change of ingot to meet the new chemical specification. The new alloy can be continuously poured as soon as the old alloy has been exhausted. Even when it is necessary to change alloy several times in a

single shift, production can be maintained at almost full swing.

Continuous melting not only results in significant cost reduction, but also makes cost control easier. The direct costs of melting become almost a "straight-line" function with the weight of metal melted. Small quantity heats are entirely feasible and need not require penalizing the customer on a price basis.

Only a few hundred pounds of metal are in the molten state at any given moment. Still a 2000 lb per hr pouring rate is a cinch to maintain. To meet the same pouring requirements, the standard reverberatory furnaces would require more than seven tons of molten aluminum at all times.

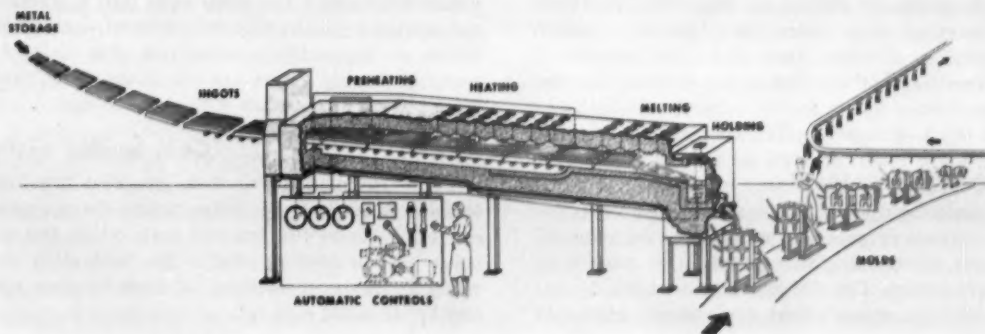
#### Cut fuel costs

The small quantity continuous melt eliminates the need for holding large quantities of molten material at melting temperature or above for long periods of time. Fuel bills are shaved drastically once this expensive, prolonged heating cycle is replaced. Compared with the reverberatory furnace, gas consumption for the Monarch installation has been cut from 3.0 to 1.9 cu ft of gas per pound of aluminum. Furnace shut down or restarting becomes a relatively simple matter, requiring a minimum of time and labor.

The company has shown sufficient confidence in continuous pouring to install three special furnaces for this purpose. These new installations have capacities for 1500, 1800, and 2400 lbs/hr. The capacities are predicated on an average pouring temperature of 1400°F.

In practice, even when the furnaces are operated at only 60 pct of capacity, loss of efficiency is negligible.

The simplicity of design and unusual versatility of the equipment are likely to appeal to both large and small foundries. Monarch is presently investigating the possibility of using similar equipment in their die-cast department. Further applications are bound to develop as more experience with the new equipment is gained.



Line drawing shows the simplicity of the process from feeding ingot to continuous casting.

# New Rotary Gang Slitter Coordinates Production Flow

◆ From \$90 to \$100 thousand will be saved yearly by in-plant slitting of coiled strip previously purchased slit to specifications . . . Not only is the new slitter a high production unit (18,000 lb per 8 hr), but one which gives close control over tolerances.

◆ One operator handles the entire line . . . Slitting speeds range from 50 to 200 fpm . . . An adjustable tension control permits slitting thin material, often 0.008 in., without tearing or distorting it.

◆ A NEWLY DEVELOPED rotary gang slitter will save the Logansport plant of The General Tire and Rubber Co. from \$90 to \$100 thousand this year. The new slitting line, in addition to the slitter, consists of a unit-mounted core plate recoiler and scrap winder and an expanding drum pay-off. The equipment was delivered as a completely assembled, fully wired package unit.

The company formerly purchased steel slit to specifications. By slitting its own steel, the above cost savings have been made possible. Better availability of wide stock and close control of tolerances are other advantages claimed for the setup.

At the Logansport plant, close-tolerance stock mounts are manufactured on a high production basis. Everything from tiny mounts for delicate electronic equipment to massive bushings for giant punch presses are supplied to automotive, aircraft, electrical appliance and farm machinery manufacturers. The slitter is also used in conjunction with the manufacture of General's glass-run channel.

To keep pace with the high output of these items, the slitter, built by Stanat Mfg. Co., is

producing, 18,000 lb of coiled strips every eight hours. This includes loading, set-up of arbor knives, banding of finished coils, and unloading; all accomplished by one operator.

A novel core plate recoiler is mounted on the base of the machine. This feature not only eliminates the necessity of push-off equipment, but it also facilitates the handling of finished coils. The operator winds each strip around removable core plates and inserts the strip ends into a starting slot provided on the circumference of each plate. Strips are separated by aluminum alloy disks. As many as twenty strips are slit at one time, each strip having a minimum width of one inch.

## Coils banded easily

Three radial banding slots are also provided on each core plate. By these means the operator can easily band the finished coils while the remain on the recoiler shaft. He then slips the coils off the shaft, punches out the core plate and another finished coil.

Precision tolerances as close as  $\pm 0.001$  in. are obtained by the aid of a recoiler slip clutch which is adjustable from the operator's position while



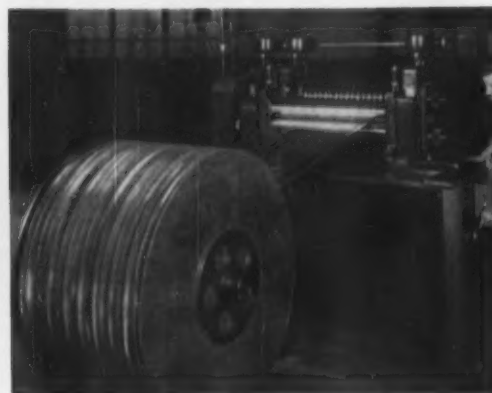
**OPERATOR** is shown entering stock from payoff. Previously slit coils are in foreground.



**STOCK** passing through exit rolls. Stripper fingers are between cutters, beneath spacers.



**INSERTING** strip ends into starting slot of recoiler core plate is shown in photo above.



**CONTROLLING** stock tension while the machine is running. This makes for closer tolerances.

the machine is running. This is a major convenience in producing tightly wound, uniform coils. Since material as thin as 0.008 in. is often slit, the adjustable tension control prevents the tearing or distortion of light-gage stock. This also permits savings in subsequent processing.

The slitter, designated by Stanat as the Model S-350, has 4-in. diam arbors of heat-treated alloy steel, keyed full length to drive the cutters. A triple bearing design increases rigidity and reduces arbor "droop" when the outboard housing is removed for changing the cutter arrangement.

The upper arbor is designed to "float" axially so that its cutters may align perfectly with those on the lower arbor.

Another feature which simplifies operation is the single handwheel worm drive screwdown which permits both ends of the upper arbor to be adjusted simultaneously. Arbor parallelism is not disturbed when vertical settings are changed nor when the outboard housing is removed. A single micrometer dial facilitates accurate positioning of the arbor. These devices permit extremely care-

ful setting of cutter overlap, increasing cutter life to a great degree.

Slitter housings are made of high tensile Meehanite castings. Their rigid construction helps maintain cutter alignment, producing a fine strip edge with minimum wear on the cutters.

An expanding drum pay-off accommodates 24-in. width coils and is manually adjusted to take a range of coil inside diameters from 14 in. to 17 in. An extra set of pay-off leaves can be added to increase the range to 20 in. This unit also includes an adjustable friction clutch which provides tension on stock for smooth uncoiling.

#### **Has four-speed drive**

The slitter is equipped with a 15-hp four-speed gearshift drive, geared to obtain slitting speeds of from 50 to 200 fpm; however, it can be furnished with constant and variable-speed drives as well. The electrical controls consist of a non-reversing magnetic starter with overload protection and start, job and stop remote control push button station.

## Machine

# Both Ends of Workpiece Simultaneously

♦ THE DIE CAST aluminum alloy agitator posts used in two well-known makes of domestic laundry machines require certain machining operations at both ends. Normally the job would be done in two steps, using two machines.

### Use special chuck

But at Whirlpool Corp's. Clyde, Ohio, Div., the work is done in a single novel setup on a Warner & Swasey turret lathe. The machine is equipped with a special chuck and uses a Bellows air cylinder attachment to operate a reamer inside the chuck.

Initial machining on the outer end of the post uses cross slide tools to trim the end and face a shoulder. Next, two steps on the same end are

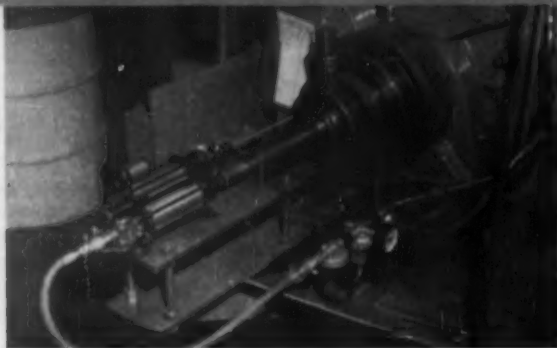
turned to threading diameter. While this step turning proceeds, the operator presses a button to start the reaming action on the cored hole at the inner, or chuck-held end of the post.

The air cylinder attachment pilots the reamer inside the long-jawed chuck and into the cored hole. As the reamer reaches specified depth it also chamfers the end of the hole. Chips clear out through holes in the chuck jaws. When its work is done the reamer retracts automatically.

Meanwhile, after the thread diameters have been turned at the outer end of the agitator post, chasers on the turret are fed in to cut the threads. During the entire machining cycle the die casting is rotated at 724 rpm. One man puts 700 posts through this lathe operation in 8 hours.



LONG chuck jaws hold one end of part for reaming while turret tools work on outer end.



AIR cylinder advances and retracts reaming and chamfering tool through special chuck.



# Newport Steel

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and accomplishment. The latest addition in Newport's continuing program of expansion is the new cold-reduction mill, supplying still another essential steel from this one convenient, dependable source. Look over this list of Newport's quality products, then let us discuss your requirements with you.



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- Galvannealed Sheets
- Colorbond Sheets
- Electrical Sheets
- Alloy Sheets and Plates
- Electric Weld Line Pipe
- Roofing and Siding
- Eave Trough and Conductor Pipe
- Culverts

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## FREE AIDS

# New Technical Literature

## Catalogues and Bulletins

### Readix

A new, 12-page brochure on the Readix, a general purpose, fixed and floating point computer designed for business data processing, scientific computation, data reduction or automatic control, is now offered. It includes such features as the Readix's low price, built-in test equipment and simplified maintenance. *J. B. Rea Co., Inc.*

For free copy circle No. 1 on postcard, p. 113.

### Molykote

For lubrication's "fringe area" where extreme bearing pressures or excessive temperatures defeat conventional lubricants, the Alpha Molykote Corporation has pioneered in the development of Molykote—industry's most versatile lubricant—which is described in a bulletin. *The Alpha Molykote Corp.*

For free copy circle No. 2 on postcard, p. 113.

### Heat absorption

The Rate Of Heat Absorption Of Steel is the subject of a new 32-page booklet which is available. The brochure details a simplified method by which the heating rate of steel can be calculated and the center temperature of the piece predicted. Included are charts and diagrams. *Bloom Engineering Co., Inc.*

For free copy circle No. 3 on postcard, p. 113.

### Air conditioners

A new 2-page illustrated bulletin describing the new low-height self-contained floor-type air conditioners for commercial class installations is now available. The new bulletin discusses construction, operation and maintenance for 5 air conditioner sizes from 3 to 15 tons capacity. *American Blower Corp.*

For free copy circle No. 4 on postcard, p. 113.

## FOR YOUR COPY

Money-saving products and services are described in the literature briefed here. For your copy just circle the number on the free postcard, page 113.

### Industrial trucks

Literature containing 24 cost-cutting ideas with industrial trucks, taken from all major industries, is available. Both standard type trucks and specially designed models are covered. *The Elwell-Parker Electric Co.*

For free copy circle No. 5 on postcard, p. 113.

### Chromalox

A new 4-page bulletin illustrates and describes a wide range of electric heaters designed for the heating of cleaning, pickling and plating solutions. Chromalox assures accurate temperature controls. *Edwin L. Wiegand Co.*

For free copy circle No. 6 on postcard, p. 113.

### Dial feed

The new design of a standard, air operated, single phase EPDF Dial Feed rotary indexing welding machine is announced in a bulletin. It includes machine specifications, principle of operation, and production. *Sciaky Bros., Inc.*

For free copy circle No. 7 on postcard, p. 113.

### Pool washing screens

Pool washing screens for handling a wide variety of materials such as limestone, lead, zinc, dolomite, coal, iron ore, tungsten, sand, and phosphates are described in a new bulletin released by the company. *Allis-Chalmers Manufacturing Co.*

For free copy circle No. 8 on postcard, p. 113.

## FREE TECHNICAL LITERATURE

### Tin content indicator

A new bulletin describes the Wheelco Portable Tin Content Indicators. The design and development of this instrument fill the need of a unit for a quick analysis of solder quality. It provides a means of determining the ratio of the lead and tin content in solder for process standards and economy. *Wheelco Instruments Div. Barber-Colman Co.*

For free copy circle No. 9 on postcard, p. 113.

### Screws and bolts

In its new 30-page catalog, the manufacturer of quality screws and bolts offers an extended range of fasteners including machine screws and A&B tapping screws, Phillips and slotted, and stove bolts, available in steel, brass, silicon bronze, aluminum, and stainless steel. *Southern Screw Co.*

For free copy circle No. 10 on postcard, p. 113.

### Honing machine

A new 8-page booklet is now available describing honing machines and their application. The booklet explains honing, compares it with other metalworking methods, and tells where and how honing can be used profitably. Typical parts suitable for honing are pictured. *Sunnen Products Co.*

For free copy circle No. 11 on postcard, p. 113.

### Roller bearings

A 52-page bulletin contains up-to-date technical information and list prices on the complete line of roller bearings. Tabular data includes engineering drawings, dimensions, shaft sizes, weights, radial load ratings and list prices. It includes product illustrations, cut-away views and typical applications of products. *Dodge Manufacturing Corp.*

For free copy circle No. 12 on postcard, p. 113.

### Cranes

An illustrated brochure describes the advantages of the 8400 mobile crane. Specifications, including power unit and maximum gradients, are given in detail. Charts showing radii in metres from center of rotation are included. *George Cohen Sons & Co., Ltd.*

For free copy circle No. 13 on postcard, p. 113.



## MARCHANT GOES AUTOMATIC IN PLATING

### *Udylite Automatic Plating Machine Brings Big Savings to Calculator Maker*

The same benefits Marchant Calculators, Inc., enjoy from the installation of a Udylite automatic plating machine can be yours—and for only a modest capital investment.

Better process control, reduction in operating and maintenance costs and improved work quality are the result of Marchant's installation of a Udylite Junior Full Automatic. In addition, they are now experiencing better ventilation, better and safer working conditions, manufacturing control with built-in instrumentation, greatly reduced materials handling and a minimum of rejects.

When the time came to install new plating facilities for their expanding business, Marchant naturally turned to Udylite. After a study of the Marchant problem Udylite engineers recommended the Udylite Junior with an automatic load and unload conveyor for the cadmium plating to fine tolerances of the many parts of the Marchant Calculator.

And so, another business friendship has been formed.

We at Udylite can help you improve quality and save money in your metal finishing operations. For quick response fill in the coupon below.

### WORLD'S LARGEST PLATING SUPPLIER

We are interested in Udylite Automatic Equipment for our metal finishing operations. Have your salesman call.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

ZONE \_\_\_\_\_

CITY \_\_\_\_\_

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THE  
**Udylite**  
CORPORATION  
DETROIT 11, MICHIGAN

# BERYLLIUM COMES OF AGE

New product development, integrated production facilities, new marketing techniques mark wide acceptance of beryllium copper alloys



**ARC FURNACES** make possible high production of master alloy, out of which other beryllium copper forms are made.

Twenty years ago beryllium copper was an experimental alloy. Today it is a production material in widespread demand, used for its unique combination of strength, conductivity, formability, and dozens of other valuable properties. It is used in production tools, such as giant flash welders; in consumer products, such as refrigerators and cars; in developments as up to date as nuclear energy. The Beryllium Corporation, world's most integrated producer of beryllium copper, foresaw this demand and took steps to meet it.

New sources of beryl ore, raw material of the beryllium industry, were sought out—with such success that the Government now says resources are adequate for both civilian and defense needs.

New alloys were developed. "Beryldur," for example, is a new low-cost alloy offering a combination of strength and conductivity not hitherto available.

A multimillion-dollar plant expansion program made possible greater production, increased the range of sizes and shapes, tightened tolerance ranges.

At the same time, mill service was supplemented with conveniently located warehouse stocks of "Berylco" Beryllium Copper. Leading nonferrous distributors throughout the United States and Canada now stock "Berylco" in a wide range of sizes for immediate delivery.

Write today for sample material or engineering help.



**QUALITY CONTROL FOR MASS PRODUCTION.** This new direct-reading spectrometer analyzes beryllium alloys while they are still molten.

**APPLICATIONS UNLIMITED.** This 16-page booklet describes scores of typical applications for beryllium copper. Send for your free copy... today.



## THE BERYLLIUM CORPORATION

DEPT. 5J, READING 6, PA.

STOCKED BY WAREHOUSE DISTRIBUTORS THE COUNTRY OVER

## FREE TECHNICAL LITERATURE

### Pumps and controls

A new 56-page catalog describes the complete line of oil-hydraulic pumps, controls and accessories for general industrial application. The new catalog includes engineering, design and application information relating to pumps, pressure controls, volume controls, directional controls, etc. *Vickers Inc.*

For free copy circle No. 14 on postcard, p. 113.

### Optical tooling

A complete and comprehensive catalog describing optical tooling instruments and accessories for checking and alignment of machines is available. It includes many new items not heretofore available to help simplify the task of checking straightness of ways, parallel bars, angle blocks, etc. *Farrand Optical Co., Inc.*

For free copy circle No. 15 on postcard, p. 113.

### Parking in the air

Parking In the Air With Structural Steel, a 24-page booklet, is available. It contains pictures and descriptions of steel framed parking structures and a brief technical section to aid in the plan and design of parking decks. *American Institute of Steel Construction, Inc.*

For free copy circle No. 16 on postcard, p. 113.

### Shear-Speed

Details on the two new additions to the Shear-Speed gear shaper line—Models 18136 and 18206—are covered in an 8-page bulletin which gives gear production men and management an informative picture of the operating features and advantages of these high-speed gear cutting machines. It includes dimensional and operational specifications. *Michigan Tool Co.*

For free copy circle No. 17 on postcard, p. 113.

### Power strapping machines

A new 4-page folder on the versatile power strapping machines has been released. Numerous photos illustrate up-to-date automatic steel strapping of cartons, boxes, bundles, and coils. The folder contains photos of the four standard models and lists their specifications. *Signode Steel Strapping Co.*

For free copy circle No. 18 on postcard, p. 113.





In Chicago...  
you'll see for the first time

# A NEW LINE OF GISHOLT MACHINES

Identified by  
this  
medallion:



The new Gisholt MASTERLINE medallion identifies this new and improved series of machines—and re-emphasizes Gisholt achievements in building the master tools of industry since 1887.



Based upon nearly 70 years of specialized experience, the new Gisholt MASTERLINE machines are ready to give you production far in advance of their time.

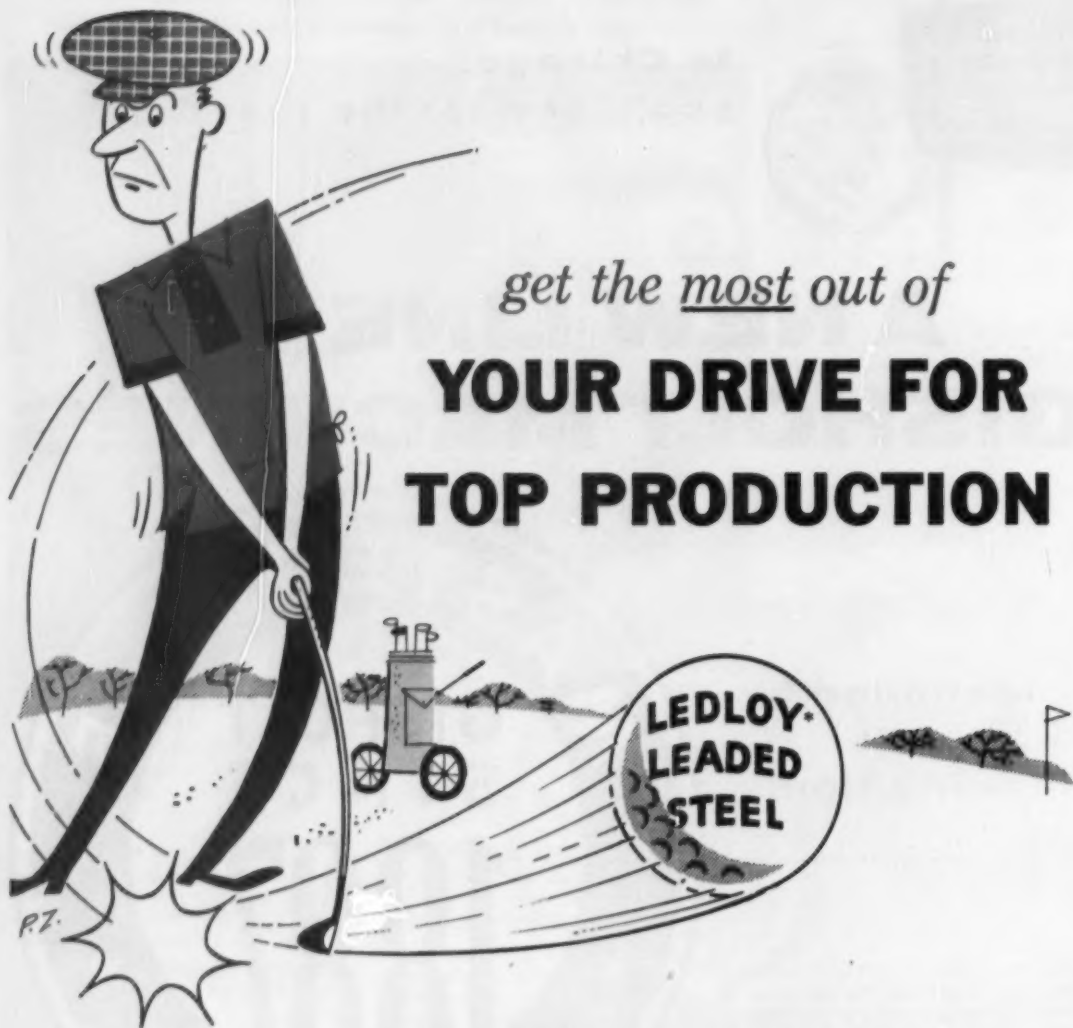
Come in and inspect them at close range. Watch them operate. Learn what these new Gisholts can do to cut costs on your work.

Be sure to visit the Gisholt exhibit—Booth 1413, Exhibition Hall.

# GISHOLT

MACHINE COMPANY

TURRET LATHES • AUTOMATIC LATHES • SUPERFINISHERS • BALANCERS • SPECIAL MACHINES



get the most out of  
**YOUR DRIVE FOR  
 TOP PRODUCTION**

If your production isn't up to par try Copperweld's Aristoloy Leaded Steel.

"Tee Off" on operating costs by specifying the steel that insures . . .

- FASTER FEEDS AND SPEEDS
- LONGER TOOL LIFE
- A FINER FINISH THAT OFTEN ELIMINATES FINAL MACHINING OPERATION

Use the steel with "Built-In Productivity". Buy on value—not on price.



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For further details  
 write for free booklet  
 "Lead Treated Steels"



COPPERWELD STEEL COMPANY • STEEL DIVISION • WARREN, OHIO

# FREE TECHNICAL LITERATURE

These publications describe money-saving equipment and services . . . they are free with no obligation . . . just circle the number and mail the postcard.

This section starts on p. 108

## Vacuum melting process

Aid in solving critical metallurgical problems may be found in an 8-page booklet on the Vacuum Melting process. All those concerned with metallurgy and product design will be interested in the information. *Utica Drop Forge & Tool Corp.*

For free copy circle No. 19 on postcard.

## Portable spot welder

A bulletin on the portable spot welder is available. It describes the spot welder as to: electronic thyrotron controlled time switch; finger tip control; light in weight. It includes a price list. *Ampower Products Co.*

For free copy circle No. 20 on postcard.

## Fluidmotion dressers

Descriptive literature on Fluidmotion dressers is available. It contains specifications on all models of the dresser, including operating instructions which indicate the ease with which special forms may be obtained using the various dressers. *J&S Tool Co.*

For free copy circle No. 21 on postcard.

## High vacuum pumps

Mechanical high vacuum pumps are the subject of a bulletin just issued. The bulletin supplies up-to-date data on the complete line of NRC Rotary Gas Ballast Pumps. It also contains nomographs and other information of use in designing a vacuum system. *Naresco Equipment Corp.*

For free copy circle No. 22 on postcard.

## Hydraulic gap press

A bulletin describes the adjustable bed hydraulic gap press which will handle a much wider range of pressing applications than is possible with any other fixed bed press. The bulletin includes descriptions of the hand-air-oil operated model and the motor operated model. *K. R. Wilson, Inc.*

For free copy circle No. 23 on postcard.

## Tube cutting

A booklet describes the tube cut-off machine as to: fully automatic operation; minimum burr; precision cutting to length; positive lubrication of all moving parts; no distortion of the tube, etc. *Grieder Industries, Inc.*

For free copy circle No. 24 on postcard.

## Panto-Miller

A brochure is available which describes, illustrates, and gives engineering specifications for the Model 3-A Panto-Miller, a tracer-controlled production machine for 3-dimensional pantograph and milling work. *Johnson & Bassett, Inc.*

For free copy circle No. 25 on postcard.

## Plating tanks

A data sheet describes the application of Honeywell instrumentation to various types of plating tanks. Schematic diagrams of typical installations describe the use of electric and pneumatic temperature control systems, and of recording, indicating and non-indicating instruments. *Minneapolis-Honeywell Regulator Co.*

For free copy circle No. 26 on postcard.

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### Turret press

A bulletin describing the new turret punch press for punching holes in printed wiring boards is available. This machine provides an economical method of producing holes in boards in low to medium quantities. *Wiedemann Machine Co.*

For free copy circle No. 27 on postcard.

### Lift truck

Operating advantages of the Hyster Monomast lift truck, the single-mast design with panoramic visibility, are illustrated in a new catalog. The lift truck is available in both 3 and 4 thousand lb capacities. *The Hyster Co.*

For free copy circle No. 28 on postcard.

### Lock-Load Palletizer

Now all the bottlenecks and headaches associated with manual pallet loading can be eliminated by the application of an advanced design automatic palletizer, called the Lock-Load Palletizer, just introduced. *Food Machinery and Chemical Corp.*

For free copy circle No. 29 on postcard.

### Grinding wheels

A catalog which is available is a quick means of making selections of the proper grinding wheel to be used on the more common operations. It includes information on wheels for various types of grinding, such as internal grinding, cylindrical grinding, tool room grinding, etc. *Sterling Grinding Wheel Co.*

For free copy circle No. 30 on postcard.

### Vulcanizers

A new electrically operated cable vulcanizer, reported to weigh only 16 lb, less molds, yet capable of making repairs on cable up through two inches in diameter, has been developed. These units are designed to make quick on the job jacket repairs or to completely replace insulation and jacketing when splices are required. *Joy Manufacturing Co.*

For free copy circle No. 31 on postcard.

### FOR MORE LITERATURE

Many companies offer free literature and other information in their advertisements. For the names of these firms see the company listings in the index of advertisers.

### Deoxidant compound 89

Since the disposal of chromic acid wastes in the anodizing industry is of major importance, manufacturers of chemical products for the metal finishing industry has announced Deoxidizing compound 89, a non-chromic acid containing material for stripping all types of anodic coatings from aluminum parts and racks. The compound contains no ingredients which make waste disposal a problem. *Enthone, Inc.*

For free copy circle No. 32 on postcard.

### Blast cleaning

A new bulletin on the subject of blast cleaning steel slabs and billets in steel mills has just been published. It explains how it descales stainless steel billets and slabs at exceptionally low cost. *American Wheelabrator & Equipment Corp.*

For free copy circle No. 33 on postcard.

### Sand testing equipment

A revised 4-page bulletin on the complete line of foundry sand testing equipment is available. It illustrates each unit and gives details of the construction and application. *Claud S. Gordon Co.*

For free copy circle No. 34 on postcard.

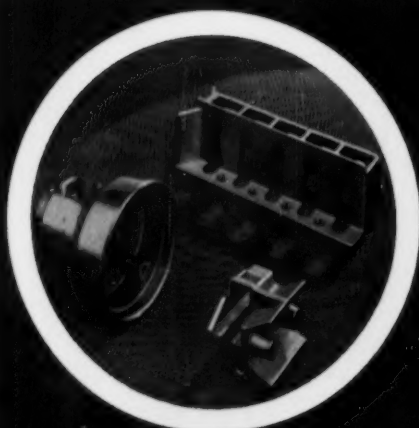
### Positioning control

Numerical positioning control is a system for automatically controlling machine tools from standard business machine cards. A bulletin shows its advantages: increased machine productivity, speed and accuracy; reduced spoilage; easy application. *General Electric Co.*

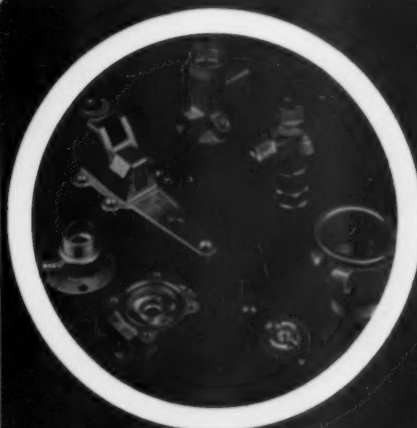
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Turn to Page 115

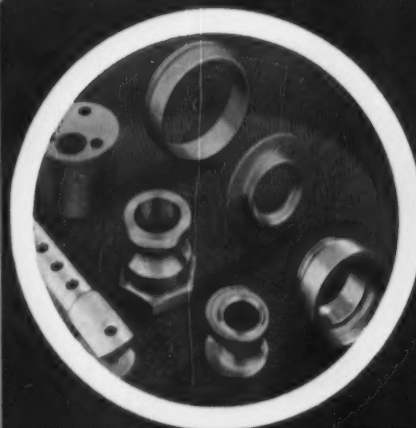




Titan brass pressure die castings



Titan brass and bronze forgings



Titan brass and aluminum hand screw machine parts

One of Titan's modern automatic chucking machines for preparing brass and aluminum forgings to customer specifications. Titan performs all types of machining operations.



Accurately machining a Titan forging on a turret lathe. Titan fabricating operations cut customers' assembly costs.

# Titan machined parts

have sparkle,  
economy and  
versatility

# Titan

**METAL MANUFACTURING COMPANY**  
Bellefonte, Pa. Offices and Agencies in Principal Cities

Appeal and usefulness of brass or aluminum forgings and pressure die castings are increased greatly by multiple drilling, reaming, tapping, gang-milling, turning, broaching or knurling at the skilled hands of Titan machinists.

Equipment includes turret lathes and automatic chucking machines for producing finished machine parts of volume, quality, economy and superb finish. For example, high-quality forgings are supplied by Titan ready for assembly—already precision-broached and gang-milled with multiple-drilled and tapped holes.

When smaller quantities of fabricated parts are needed, Titan hand screw machine facilities come into play. Here, holding to closest tolerances and precision requirements is regular practice.

Let us suggest how Titan machined parts may solve your assembly problems and cut costs. Write for more information. And send for new 40-page full-color booklet "Behind the Scenes." Use the coupon below.

Dept. B

Titan Metal Manufacturing Co., Bellefonte, Pa.

Gentlemen: Please send 40-page booklet "Behind the Scenes."

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Street \_\_\_\_\_

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# FACTS

about



## NEW DEPARTURE BALL BEARINGS

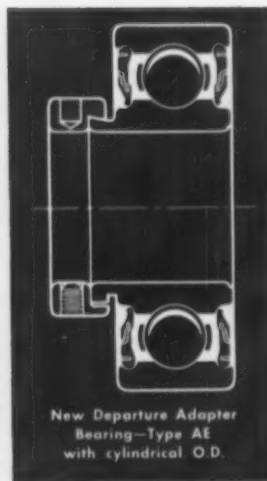


### Adapter bearings for fast, easy mountings at low cost!

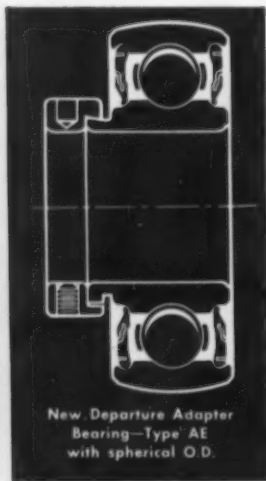
New Departure adapter ball bearings provide inexpensive mountings for many applications.

They are precision bearings, pre-lubricated and efficiently sealed. Also available with stamped flanges, these bearings become complete, initially aligned units for quick assembly.

Designed for moderate loads and speeds and for applications where alignment and concentricity are not critical, the bearings eliminate need for shaft shoulders, ground bearing seats or press fits. The eccentric cam has a self-locking action when tightened against rotation and is intended for uni-directional rotation. New, highly efficient Sentry-Seals give the bearings optimum protection against dirt . . . longer life without attention.



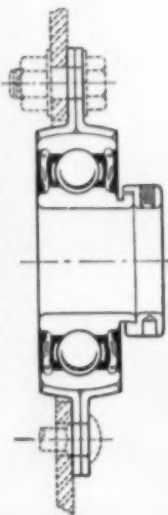
New Departure Adapter  
Bearing—Type AE  
with cylindrical O.D.



New Departure Adapter  
Bearing—Type AE  
with spherical O.D.

### TYPICAL APPLICATION OF NEW DEPARTURE ADAPTER BEARINGS

New Departure adapter bearings—Type AE—may be used to especial advantage on farm implements and machines operating at moderate speeds. Bearings with loosely assembled flanges are slipped on the shaft and lightly bolted to side plates. After flanges are finally secured, locking collars are tightened in direction opposite rotation and fixed by set screw. Dimensions and load ratings of various adapter bearings are listed in the latest New Departure catalog.



WRITE FOR NEW CATALOG  
23rd EDITION

**FREE LITERATURE**  
*Continued*

**Adhesive bonding**

A new, 8-page booklet is available. The booklet is devoted to factors which complicate the specifying of bonding materials and processing techniques; why optimum results are not often obtained when adhesives are selected from a catalog, etc. *Rubber & Asbestos Corp.* For free copy circle No. 36 on postcard, p. 113.

**Steel strapping**

The model Q semi-automatic round steel strapping machine for reinforcement, closure and unitizing of corrugated and fibre containers, light box shooks, dimension stock, light wooden cases, newspapers and magazines up to 75 lb is described in a brochure. *Gerrard Steel Strapping Div., United States Steel Corp.* For free copy circle No. 37 on postcard, p. 113.

**Weight table**

A screw machine products weight table is now available. The weight of material required for a screw machine products job is a manufacturing cost factor that can be quite accurately estimated by using this new chart. *Scovill Manufacturing Co.*

For free copy circle No. 38 on postcard, p. 113.

**Foamite Airfoam**

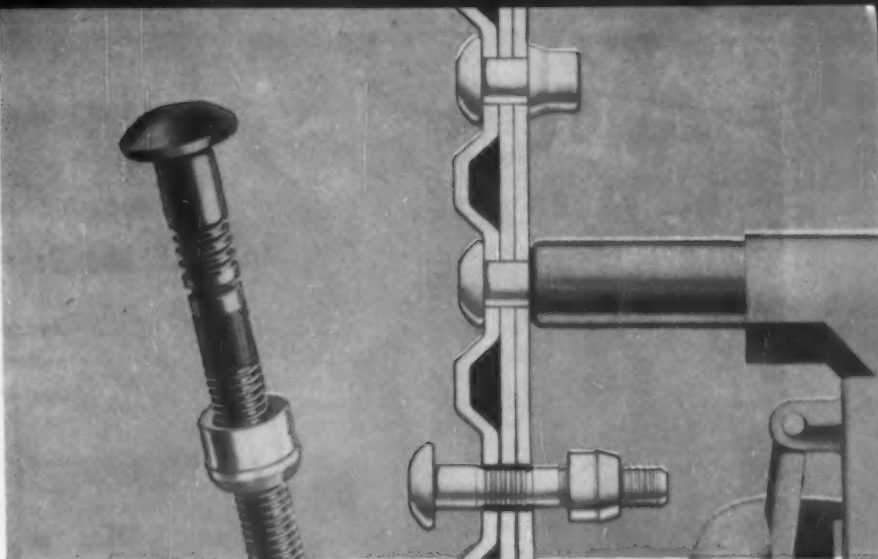
Information about Foamite Airfoam fire extinguishing equipment for combatting various types of flammable liquid fires is contained in a 36-page booklet just published. This booklet contains engineering data and other useful facts on Foamite Airfoam fixed fire protection systems, portable equipment and semi-portable equipment. *American LaFrance Corp.*

For free copy circle No. 39 on postcard, p. 113.

**Stainless steel**

The general theme of a handbook now available is The Functional Selection of Stainless Steels. Complete chapters deal with the selection of stainless steels for corrosion resistance, heat resistance, mechanical properties and spring properties. Other sections of the book present useful information on workability, cleaning and passivation, machinability and other techniques and practices. *H. K. Porter Cor.*

For free copy circle No. 40 on postcard, p. 113.



**Quick As A Wink—  
You Get Secure, Permanent Fastening  
With Townsend Lockbolts**

In less than a second, with one squeeze of the trigger, a Townsend lockbolt pulls the work together with a high clinching action, is locked in place with uniform pressure. It is a quick method of producing tight, rigid, permanent fastenings that cannot loosen even under extreme vibration or shock conditions.

Townsend lockbolts combine the advantages of riveting and bolting—eliminate the disadvantages. Installation is fast—under certain conditions, one man will install 30 in only 60 seconds. Fewer workers will complete an assembly in less time than when riveting or bolting.

The clamping action, or clinch, of Townsend lockbolts is higher than rivets—is more uniform than bolts and nuts. The lockbolt fills

the hole better than other fasteners, thus making possible a more rigid joint and also providing an effective liquid seal.

The Townsend lockbolt consists of two precision-made parts—a pin and a collar. Locking grooves are provided on the pin into which the collar is swaged by the pneumatic gun. The pulling section of the pin breaks in tension at a predetermined point when the setting action is completed.

Townsend lockbolts are available in steel and aluminum alloy, in  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ " and  $\frac{3}{8}$ " diameters, in grip lengths ranging up to 2", in various head styles. For information on how to speed production, get tight, secure, permanent fastening with Townsend lockbolts, use the coupon below.

*Licensed under Huck patent nos.*

*RE 22,792; 2,114,493; 2,527,307; 2,531,048; 2,531,049.*

THE FASTENING AUTHORITY

**Townsend**  
COMPANY • ESTABLISHED 1914

NEW BRIGHTON, PENNSYLVANIA

Sales Offices in Principal Cities

Cherry River Division • Santa Ana, California

**TOWNSEND COMPANY**  
Sales Department  
New Brighton, Pa.

Please send without obligation "Lockbolt" Bulletin TL-101.

Name \_\_\_\_\_ Title \_\_\_\_\_  
Company \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

NOW **TWO** TYPES  
OF CHALLENGE  
SURFACE PLATES



**NEW!**  
**CLOVIS BLACK GRANITE**  
Rated Class A  
Surface accuracy  
guaranteed.

**FINE GRAIN SPECIAL ANALYSIS SEMI-STEEL**  
Precision ground  
or hand-scraped

STILL **ONE** STANDARD  
OF CHALLENGE QUALITY!



**Semi-Steel  
Layout Surface Plates**

High compressive strength . . . low  
coefficient of expansion. 16 standard  
sizes, 6" thick — other sizes to order.  
Also available for sectional assembly  
into unlimited sizes.



**Cast-Iron Top  
Work Benches**

Four sizes, three styles. For individual  
use or on a continuous line. With self-  
contained storage facilities.

**Other Challenge Precision Products:**  
Clamp Edge Layout Plates • Reading  
Tables • Lapping Plates • Welding  
Tables • Surface Plates • Bench Plates  
• Surface Plate Equipment.

See the full line of Challenge Clovis  
Black Granite and Semi-Steel Surface  
Plates in the new Challenge Catalog.  
Send for your free copy today!

786



**THE CHALLENGE MACHINERY CO.**  
Office, Factories and Show Room  
GRAND HAVEN, MICH.

TECHNICAL BRIEFS

## WELDING: Flux Refurbisher

**Magnetic separator automatically culls  
iron contaminants . . . Adaptable to recovery of  
other iron-polluted processing materials.**

A permanent magnetic pulley  
arrangement being used for auto-  
matically separating iron contam-  
ination from used welding flux  
may be adaptable to other applica-  
tions where processing materials  
are normally rendered unfit for re-  
use due to adulteration with iron  
particles.

At Automatic Hardfacing, Inc.,  
Everett, Wash., worn pulleys, roll-  
ers wheels, idlers, etc., are resur-  
faced. These units are secured on  
revolving axles while automatic  
welders build up the worn sur-  
faces. As the welding flux cools  
and flakes off, it contains an ad-  
mixture of fine iron particles. This  
impure flux is collected and trans-  
ferred to a storage bin.

### Recovery Equipment

To render the flux suitable for  
re-use, the company purchased the  
Eriez recovery equipment. Equip-  
ment consists of an 8" belt con-  
veyor upon which the impure flux  
is fed from a small hopper, the  
head pulley of the conveyor being  
a permanent magnetic pulley  
which the operator turns by means  
of a hand crank whenever a quan-  
tity of flux is required. As the non-  
magnetic flux reaches the end of  
the belt, it falls freely into the  
welding machine, while all iron  
contamination is firmly held by  
the pulley's penetrating magnetic  
field. The iron falls automatically  
into a container only after the belt  
has carried it back beyond the  
magnet's influence.

Source of the Eriez pulley's mag-  
netic strength is a series of Al-  
nico V magnetic elements, ar-  
ranged axially within the pulley,  
which develop a magnetic field of  
constant strength across the whole  
width of the belt, and which can  
operate with equal efficiency

### WANT MORE DATA?

**You may secure additional  
information on any item  
briefed in this section by  
using the reply card on  
page 113. Just indicate the  
page on which it appears.  
Be sure to note exactly the  
information wanted.**

through belts of rubber, canvas,  
stainless steel or any other non-  
magnetic material.



**Culls iron contaminants . . .**

## Metals:

**Award offered for best 1955  
stainless steel article.**

First annual award for the ar-  
ticle in a 1955 industrial trade  
magazine of most value and in-  
terest to those who select or buy  
stainless steel parts or compo-  
nents has been announced by All-  
metal Screw Products Co., Gar-  
den City, N. Y.

The Award, to be known as the  
Allmetal Stainless Steel Annual  
Award, is intended to focus at-  
tention to significant findings in  
stainless steel applications and  
developments, and to help main-  
tain professional standards of



## TECHNICAL BRIEFS

trade magazine editorial features. Objectives include increased editorial clarity, documented presentation, and informative content.

### Steel Executive Judges

Judging will be done by Mr. J. D. Glenn, Crucible Steel Co. of America; Mr. Richard Paret, American Iron & Steel Institute; Mr. R. M. Allen, Allegheny Ludlum Steel Corp., and Mr. R. G. Sloan, Armco Steel Corp.

The author of the winning article will receive \$1,000 and a mounted scroll citation. The magazine carrying the winning article will receive the Stainless Steel Plaque Award. Three Honorable Mention citations providing recognition to selected entries will also be awarded.

### Feb. 15 Announcement

Winners will be announced by Allmetal Screw Products on February 15, 1956.

All business publications in the United States are eligible to compete for the award. Submitted articles must contain at least 1,000 words, and have appeared in any 1955 issue. Submitted articles must appear only in the magazine submitting it.

## Handling:

### Cranes meeting multi-building materials moving problem

A team of nine smoothly coordinated cranes is helping Danly Machine Specialties, Inc., meet a king-sized materials handling problem.

In its large Chicago plant (actually five connected buildings), Danly operates around the clock, six days a week, turning out big mechanical stamping presses for the mass-production industries. These are completely assembled and tested before shipment.

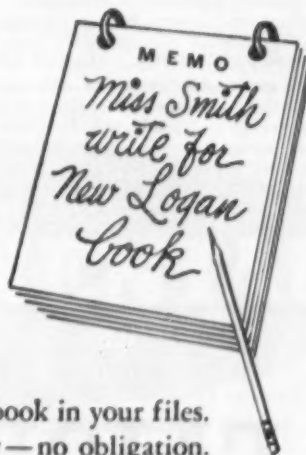
### Tight Production Schedule

Weldments and sub-assemblies weighing many tons are constantly moving between the vari-



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Write for your copy today. Of special interest to production officials, this book shows latest developments and application of Trolley Conveyors. Profusely illustrated, an informative catalog. Whether or not you contemplate using Trolley Conveyors at this time, you will wish to have this book in your files. Write today for your copy—no obligation.



LOGAN CO., 545 CABEL ST., LOUISVILLE 6, KY.

# *Logan Conveyors*

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PRODUCT...

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**FAIRFIELD  
GEARS**

★ If GEARS are a vital part of the product you make, there is no finer recommendation for the **QUALITY** of your product than to be able to say it is equipped with "FAIRFIELD GEARS."

Long producers of the gears needed in high grade trucks and tractors, Fairfield now brings the same standards for **GEAR PERFORMANCE** to a wide variety of products: Agricultural Implements... Power Shovels... Machine Tools... Diesel Locomotives... Road Graders... Lift Trucks... Road Rollers... Pump Drives... Winches... Military Vehicles... and a host of others.

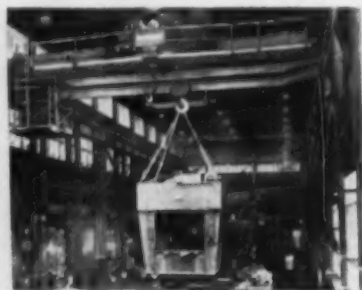
Fairfield's facilities are unexcelled. Here "under one roof" in a new and ultra modern plant designed especially for the purpose, Fairfield has everything needed for producing all kinds of gears: spur... herringbone... spiral bevel... ground tooth spiral bevel... straight bevel... coniflex bevel... hypoid... zerol... worms and worm gears... splined shafts... differentials. Get acquainted with Fairfield's engineering and production facilities. Your inquiry will receive prompt attention. **FAIRFIELD MANUFACTURING COMPANY, 2319 South Concord Road, Lafayette, Indiana.**

*Fine Gears Made to Order*



ous fabricating and machining areas according to a tight production schedule. To maintain this schedule, Danly needs a dependable materials handling system. This must be capable of continuous operation even with heavy loads, provide high handling precision and full plant coverage.

Eight of the nine Whiting cranes forming the backbone of this system are in continuous operation three shifts a day, six days a week. Four are of 50-ton



**Team player . . .**

capacity, three 25-ton capacity, and one 15-ton capacity. The ninth is a 5-ton capacity crane that works only two shifts a day, on a balcony devoted to "light" assembly work.

**Inter-Building Handling**

The cranes are responsible for almost all inter-building handling, as press components are moved through the five buildings of the plant during construction. Crane runways extend from one building into another, making it possible to transfer lifts from building to building without intermediate handling.

Building No. 1 is devoted to torch-cutting and welding of heavy steel plate. Shot-blast cleaning and stress-relieving of weldments is performed in Bldg. 2. Buildings 4 and 5 are machining areas. All weldments and sub-assemblies then go to Buildings 2 and 3 for final assembly.

Cranes are completely inspected each week. Necessary cleaning and lubrication is performed, and electrical parts and contacts are replaced according to a schedule.

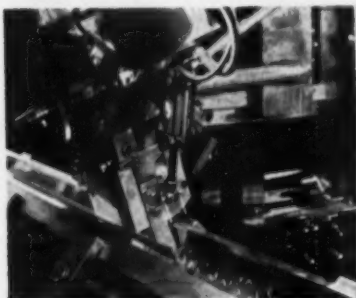
## Machining: New cemented carbide lengthens tool life.

New cemented carbides tested at E. W. Bliss Co.'s Canton, Ohio, plant are said to have outperformed other carbides of comparable grades, by as much as two to three times on one operation.

A series of twelve comprehensive tests of the Firth Loach metals were performed with such machine tools as a planer, a large boring mill and a variety of lathes, including engine and turret lathes.

### Two to Three Pieces Per Tool

In semi-finishing and finish planing of a 4340 (Rockwell C 30-33) forging 12' long, for example, one carbide delivered two to three pieces per cutting tool. Previous grades failed to last



### Longer cutting life . . .

through an entire piece. The operation involved 200 surface feet. Depth of cuts were .030" for roughing, .015" for semi-finishing, and from .005" to .010" for finishing.

On turning, facing and angle forming a 4340 (Rockwell C 30-33) part 16 3/4" x 7' 8" long, the same carbide ran the full length, formed the angle, faced the end, then ran 5' on another piece. Previous carbides were unable to take a full-length cut. Depth of cut was 1/8" at .022 speed and 56 rpm.

In turning a hot-rolled 1020 steel part from 5 1/2 in. in diameter to 2 3/4 in., another carbide ran 10 pieces with edge wear at .001 in., then ran again for fifteen more pieces. Total edge wear at job completion was .005 in. Turning was done in three passes.

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## Bright, Smooth No. 3 Finish takes Plating Beautifully—Adds Eye-Appeal to Your Products

Continental's new technique for producing #3 finish flat and special shaped wire offers you a range of standard and special wire shapes with a satin smooth finish for electroplating purposes. Previously, only flat wire with a surface suitable for high polish electroplating was obtainable . . . but now from Continental you can specify #3 finish in flat, square, rectangular, oval, and other shapes on inquiry, in practically any size, temper, and analysis in low carbon and medium low carbon steels. Here is extra "eye-appeal" for moldings, product trim, or wherever a formed plated wire component is required. Send us a blueprint of your part, or mail the coupon below for complete information without obligation. Telephone or write today.

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STEEL CORPORATION

KOKOMO, INDIANA

### PRODUCERS OF:

Manufacturer's wire in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, and special wire. ALSO, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

### FILL OUT AND MAIL TODAY

Gentlemen: Please send us complete information concerning the new Continental #3 Finish Wire for Electroplating.

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AND MOST MODERN  
PRODUCTION  
FOUNDRIES

ESTABLISHED 1866  
**THE WHELAND  
COMPANY**

CHATTANOOGA 2, TENN.

## MATERIALS ROUNDUP

### WELDING FLUX: New Formulas

Agglomerated fluxes for submerged arc  
welding of low alloy steels contain alloying  
elements . . . Offer economy, flexibility.

New agglomerated fluxes for automatic submerged arc welding of low alloy steels, introduced by Lincoln Electric Co., of Cleveland, are claimed to offer new economy and flexibility in the welding of complex and highly specialized steels.

The special fluxes, individually compounded for each job, contain alloying elements which may be changed as required. Used with a mild steel electrode they produce a low alloy deposit which can be varied to meet specific requirements.

#### Compounds and Applications

Fluxes can be compounded to produce weld metal containing chromium, molybdenum, vanadium, and nickel. They are usable for welding low alloy steels (less than 6 pct alloy). Applications would include welding chromemoly pipe for high temperature service; steels such as ASTM Specification A335-53; alloys P-2, P-3, P-3b, P-11, P-12, P-21, and P-22; also, Specification A301-53, grades A and B.

#### On Alloy and Armor Steels

The fluxes are used on newer highly complex high-strength alloy steels and armor steels, and can produce an alloy deposit that will respond to heat treatment to produce the same hardness or tensile strength of the heat-treated plate. Another application is addition of alloys to the weld through the flux when an alloy electrode is used, but additional alloy is needed to control dilution.

Several advantages are cited for adding alloys to the weld deposit through the flux rather than through the wire. The agglomeration process permits precise con-

#### WANT MORE DATA?

You may secure additional information on any item briefed in this section by using the reply card on page 113. Just indicate the page on which it appears. Be sure to note exactly the information wanted.

trol of flux analysis and, therefore, compounding of fluxes to meet the specialized requirements of any weld deposit.

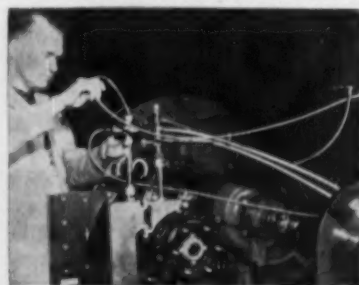
The fluxes can be made economically and quickly in any quantities. Small changes in deposit analysis can be made through welding procedure control without changing either the flux or wire composition.

### Hosing:

**Special fluorocarbon-resin hose  
solves eroding problem.**

A specially designed hydraulic hose made of a fluorocarbon type resin instead of conventional rubber materials, has stood up under more than 400 hrs of production testing without sign of wear or erosion.

The application at Sundstrand Machine Tool Co.'s Aviation Div.



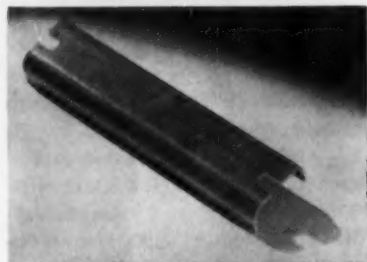
**Non-eroding hose . . .**



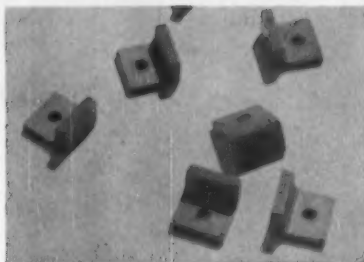


#### C-D-F MACHINES TO CLOSE TOLERANCES.

Great accuracy is required to furnish ball bearing race retainers made from fine weave cotton fabric Dilecto rolled laminated plastic tubing. When plastics can do a better job than other materials, come to C-D-F for technical and production help.



**C-D-F PIONEERED IN POST-FORMING** of laminated plastics. This technique gives you stronger, more versatile insulating parts with lower costs. This aircraft channel strip is an example of simple post-forming.

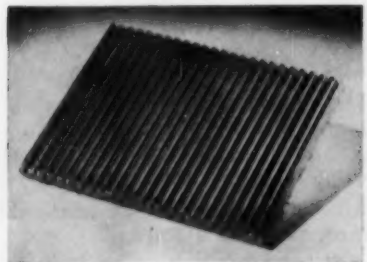


**C-D-F DOES THE UNUSUAL.** These rubbing blocks are made from fine-weave cotton cloth Dilecto molded tubing that has been pierced and cut. The part gains in mechanical strength — the product gets longer service life.

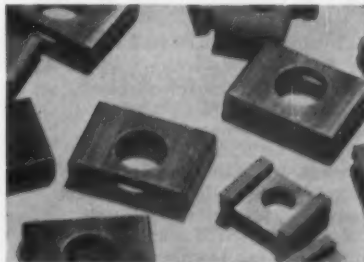


**C-D-F SPECIALIZES IN AUTOMATIC SCREW MACHINING** of plastic components. These breaker arm bushings are made from Dilecto paper base rolled tubing on high speed machines by men who know and use cost saving methods.

## Yes, C-D-F is a big reliable source for fabricated plastics!



**C-D-F SERVES MANY INDUSTRIES** with fabricated specialties. A great amount is concentrated in the automotive and allied fields. This aircraft part has a corrugated surface on a strong woven asbestos laminated base.



**C-D-F IS A PUNCHING SPECIALIST** on these starter solenoid insulators. This is XX-26 Dilecto molded channel strip, pierced and punched to length. Special C-D-F punching grades give you lower costs, faster assembly, fewer rejects.



**C-D-F COMES UP WITH THE ANSWERS** to insulating problems. These unique snap-in grommets are easy to insert, spring out and hold tight. Write for samples. The chances are that C-D-F is already making the answer to your problem.

See our general catalog in Sweet's Design File for more technical data, the address and telephone number of your nearest C-D-F sales engineer. Also, write for detailed information, samples, or send us your print for quotation.



### Continental-Diamond Fibre

CONTINENTAL-DIAMOND FIBRE DIVISION OF THE BUDD COMPANY, INC.

NEWARK 85, DELAWARE



**save  
space**

with  
**Kinnear  
Steel  
Rolling  
Doors**

Opening straight upward, Kinnear Rolling Doors coil out of the way above the opening, into the compact hood mounted on the wall (or often within the wall, where desired).

They give you full use of all space around doorways at all times. *No extra space of any kind is needed for their opening action and closing action.*

The rugged interlocking steel-slat curtain (*originated by Kinnear*) also gives you added protection

against fire, theft, vandalism, storms, and accidental damage.

For extra resistance to weather and corrosion, Kinnear Rolling Doors are heavily galvanized, with 1.25 ounces of pure zinc per square foot of metal (ASTM standards).

Kinnear Rolling Doors are built any size, for easy installation in either old or new buildings of any construction. Manual-lift, chain, or crank operation—or motorized push-button control. **Write for full details.**

**KINNEAR**  
ROLLING DOORS  
Saving Ways in Doorways

The KINNEAR Mfg. Co.  
FACILITIES:

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1742 Yosemite Avenue, San Francisco 24, Calif.  
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involves the manufacture of hydraulic constant speed drives applied to jet engines for driving constant frequency alternators. These must be tested prior to shipment and upon overhaul. During tests, MIL-O-7808 synthetic hydraulic fluid is circulated at temperatures to 250° F for production tests and to 350° F for experimental testing. It is of prime importance that fluid be kept clean to avoid contamination of units under test.

#### Variety of Hoses Tried

A variety of hose materials were tested, but none proved adequate. Within a short time, hose started to erode and replacement costs were excessive.

The Resistoflex fluorocarbon-resin hose finally adopted has shown extremely high corrosion resistance, ability to withstand temperatures to 450° F, and to remain wholly unaffected by all oils and fuels. It does not stiffen even after prolonged contact with fluids at 450° F, and retains flexibility at temperatures down to minus 100° F. Hose is supplied with a jacket of stainless steel armor braid.

#### Lubricant:

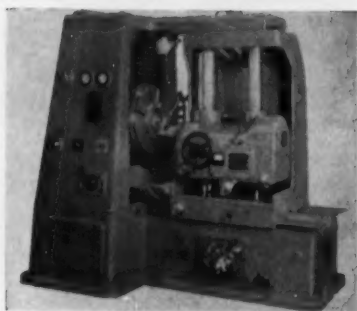
**New long-lasting dispersion  
for open-gear protection.**

A new open gear lubricant for protecting highly loaded gears which can only be lubricated infrequently leaves a plastic film on evaporation of the diluent that does not tend to hold dust, resists being washed off by water, and will not crack or peel at temperatures as low as 0° F.

The lubricant, made by Alpha Molykote Corp., protects gears from galling, welding and excessive wear when they are heavily loaded and operating under boundary lubrication conditions. It forms a bonded film of molybdenum disulfide on the gear teeth representing an added safety factor against overloads or negligent maintenance.

## NEW EQUIPMENT

New and improved production ideas, equipment, services and methods described here offer production economies... for more data use the free postcard on page 113 or 114



### Mills cams and machines irregularly shaped pieces

This SIG cam miller, made in Switzerland, is suitable for milling all kinds of cams and machining irregularly shaped workpieces. Construction is rigid, insuring a high cutting capacity and good finish. A hydraulically operated copying device permits the copying of cams from a steel sheet template on to the workpiece with high ac-

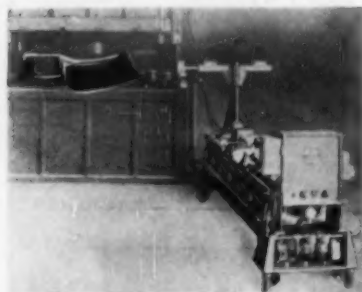
curacy. For finishing hardened cams such as found in automatic machines, the milling spindle is replaced by a planetary grinding attachment. The machine can be used with inexpensive sheet-metal templates, provides perfectly milled surface, can use carbide tools. *Morey Machinery Co., Inc.* For more data circle No. 41 on postcard, p. 113.

### Largest Payloader has 2-cu yd capacity

Third and largest completely new four-wheel-drive tractor shovel added to the Payloader line has a capacity of 2 cu yd. Features include pry-out bucket action; 40° of breakout at ground level; new standards of safety and stability together with a newly developed complete power-shift transmission.

All shifts through all speed ranges in both forward and reverse can be made without coming to a stop or even slowing down. Pry-out bucket action is accomplished by using breakout pads on the ground as a fulcrum for leverage. *Frank G. Hough Co.*

For more data circle No. 42 on postcard, p. 113.



### New automation hand pulls parts from die press

New press hand pulls parts from the die press fully automatically and at a rate of up to 30 spm. It is especially adaptable for job shops since its mobility permits it to be moved from one press to another as conditions require. Operated by compressed air, the unit is controlled by two simple switches and utilizes ordinary 110

v current. In operation the hand travels in to pull the part from the press, then travels back, firmly holding the part under pressure while the entire arm support moves backward from the press on a sliding track. At the end of the stroke, the hand releases the part. *Hamilton Automation, Inc.*

For more data circle No. 43 on postcard, p. 113.

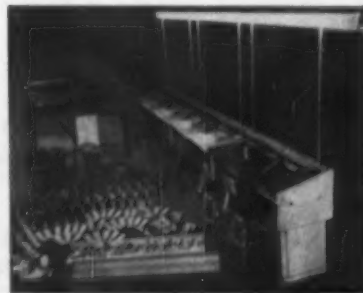
### Standardized approach to practical automation.

A work simplification and automation study department package will show any manufacturer how he can earn more dollars from less space through the application of the Alden work center system to the work in his plant. The system is a standardized approach to straight-line production and practical automation. This universal

package contains everything needed by the persons interested in production methods and product design to experiment and perfect operational methods, set up and run pilot lines, and produce job lots of finished materials. *Alden Systems Co.*

For more data circle No. 44 on postcard, p. 113.

Turn Page





# Stonehouse

## SIGNS FOR INDUSTRIAL ACCIDENT PREVENTION



### Safety on the March

Whatever your hazard, warning or guidance there's a Stonehouse sign to meet them.

Shown in full color in our complete 64-page Catalog. It's sent free on request.

Stonehouse

SIGNS, Inc. MANUFACTURERS • Stonehouse Bldg., 9th at Larimer  
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**Our Line**  
Light and heavy machinery for all classes of sheet metal plate and structural work...

8' X 6" SHEAR, 30° GAP

12' X 1/4" SHEAR, 24° GAP

**BERTSCH & COMPANY**  
CAMBRIDGE CITY INDIANA

## ELECTRIC FURNACE STEEL CASTINGS

If you are interested in minimum machining and assembly costs — ease of welding — better distribution of metal — better strength and weight ratios — better fit — better performance — greater fatigue resistance — longer life and less replacement — you should be interested in "C" electric furnace steel castings because these foundry engineered castings give you steel at its best. And — by virtue of alloy and heat treating — they offer you a choice of mechanical properties to fit your specific needs.

### Investigate!

Perhaps by cooperating with your engineers in details of design and pattern we may be able to help you achieve improved production at lower costs.

**CRUCIBLE STEEL CASTING CO.**  
LANSDOWNE, PENNA.

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✓ FLEXIBLE COUPLINGS

- ✓ VARIABLE SPEED PULLEYS and TRANSMISSIONS
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CAP SCREWS • COUPLING BOLTS  
SET SCREWS • MILLED STUDS  
... our specialty.

*Wm. H. Oremiller Co.* YORK, PENNA.

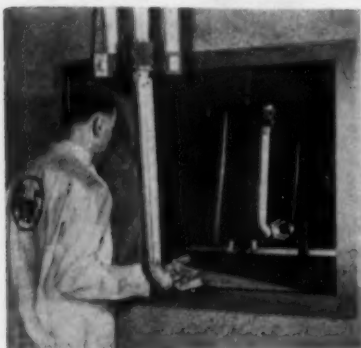


### Roll spot welder rated at 70 assemblies

Roll spot welding maintains production line speed in the assembly of a clothes dryer drum for an appliance manufacturer. This resistance seam welder makes two "stitch" seams of separated spot welds as the drum rotates between the welding wheels. This permits very closely placed spot welds and produces uniform welds due to the repetitive welding operation. The welder provides convenient loading of parts: a cylindrical shell

and two heads of sheet steel. These are clamped into position and held firmly in alignment while the drum rotates. A series welding circuit makes two circumferential rows of spot welds, one at each end of the drum. After welding, the rotating mounting of inside wheels lowers the entire assembly on support rollers. This permits the operator to remove drum from welder easily. *Taylor-Winfield Corp.*

For more data circle No. 45 on postcard, p. 113.



### Nuclear research device in volume production

Master Slave Manipulators, devices for handling radio-active materials in nuclear research, are being produced in quantity. The remote handling device, Model No. 8, has a slave wrist action that practically duplicates human wrist motion. It allows the operator to perform highly complex hot-cell operations with relative ease and complete safety. It has a sensitive touch, yet it is capable of handling weights

up to 30 lb; is made in a variety of tube lengths to fit shielding walls for both high-level and low-level hot cells. The device has a Z motion of 36 or 39 in. and a full slave arm length of approximately 7 ft. Available in both left and right-hand models, each unit includes an interchangeable general-purpose tong and through-wall tube shielding. *AMF Atomics Inc.*

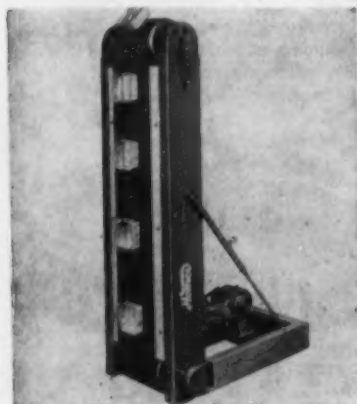
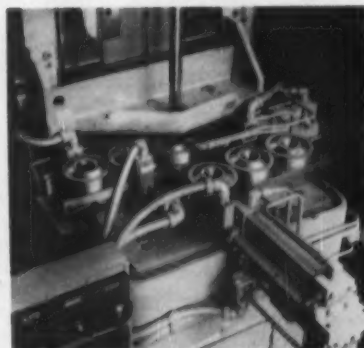
For more data circle No. 46 on postcard, p. 113.

### Broach for automatic conveyor line operation

This vertical type automatic pull down broaching machine is one of several available for automatic conveyor line operation. Equipped with electrical controls and a hydraulic broach retriever, the machine automatically broaches the hole and involute splines in an automatic transmission clutch hub. To provide alignment of the broach, the retriever follows the broach down during a principal portion of

the broaching stroke. As the broach is pulled through the part, the retriever follows at a rate which holds the broach in tension. The machine automatically receives the parts coming in from the line, broaches them, and then ejects them back onto the line. The machine runs continuously as long as parts are coming in. *American Broach & Machine Co.*

For more data circle No. 47 on postcard, p. 113.



### Saves floor space, increases automation

Close grouping of machines to save floor space and increase automation is possible with Space Saver magnetic conveyors. Ferrous pieces and parts such as nuts, bolts, nails, washers, tin cans, bottle caps, stampings, etc., can be conveyed up inclines as steep as 90° and as a result production machinery can be placed much closer together. Another time-saving application is removing scrap from receiving pits; the magnetic con-

veyors will pick up ferrous pieces from floor level. They will automatically stack flat ferrous pieces, feed machines and perform other handling operations formerly requiring manual effort. Conveying speeds for material transfer between machines may be synchronized for automatic operation. Stationary or portable types are available. *Homer Mfg. Co., Inc.*

For more data circle No. 48 on postcard, p. 113.

Turn Page



no standard  
is too exacting



Temper requirements for the thin nickel strip (.002") used in sensitive electronic tubes were too exacting to be checked by the usual methods. So Somers carefully hand checks several samples from each lot by the ultra-precise "bend test" illustrated above.

Since 1910 Somers Brass Company has specialized in producing thin strip: nickel and its alloys below .020" and copper and its alloys below .012" with the tensile properties, fatigue resistance, drawing properties and many other requirements which only the most exacting standards of production and quality control can meet.

Whatever your specifications may be, why not take advantage of Somers long experience? Write for field engineer or Confidential Data Blank for a complete survey of your problem at no cost or obligation.

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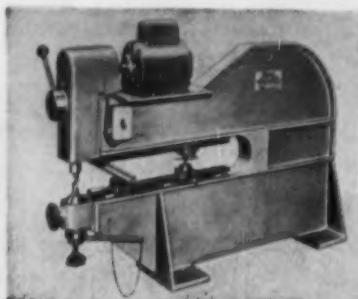


Somers Brass Company, Inc.  
WATERBURY, CONN.

## NEW EQUIPMENT

### Power cutter

Simple and quick change of tools which can be made in a matter of minutes makes the multi-purpose power cutter available for the following operations: straight, circular and louvre cutting, beading,



folding, and doming. The machine comes with either a 28½ in. or 48 in. throat and has a variable stroke adjustment. It is powered by a ¾ hp totally enclosed ball bearing motor, 110/220 v single phase, 60 cycle. Nord Corp.

For more data circle No. 49 on postcard, p. 113.

### Barrel feeder

Designed for heavy-duty, large production runs, a new barrel feeder features a stationary ring cover. The new development is based on the rotary principle, retaining the features of the conventional barrel feeder. It is said to provide a minimum of three times the holding capacity of other rotary type feeders, and minimizes the tumbling of pieces by better



than 60 pct. Open face design permits loading easily by conveyor, elevator, etc., for completely mechanized operation. The cover remains stationary and the mass of parts lie dormant except at the bottom where the collector ring rotates through. Furnished in 24 and 30 in. diam. Detroit Power Screwdriver Co.

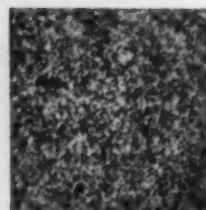
For more data circle No. 58 on postcard, p. 113.



thin strip brass  
for  
deep drawing



Uniform fine grain  
size of Somers electrolytic  
brass—less than .010  
mm. (75X).



with  
**Fine Grain Finish**

Somers Brass Company is pleased to announce the availability of a new, unique annealing process which makes possible a uniform fine grain of less than .010 mm. which can be drawn to full 40% elongation.

Developed in cooperation with the Selas Corp. of America this new process makes it possible to deep draw Somers THIN STRIP and still obtain a fine grain which is easily buffed to a brilliant finish.

And this new Selas Furnace provides high production as well as close control of temper and uniformity. It is typical of the modern equipment with which Somers produces copper, brass and other alloys to rigid specifications between .010" and .00075".

If you have a problem with thin strip, let Somers experience help you. Write for confidential data blank or field engineer.

FOR EXACTING STANDARDS ONLY



Somers Brass Company, Inc.  
WATERBURY, CONN.

## NEW EQUIPMENT

### Rapid metal melting

Efficient, rapid melting of white metals and all alloys that melt below 1000°F can be done in a new metal remelter. Furnace is charged from the top through a fully insulated hinged cover. Pot capacity ranges from 600 to 10,000 lb. A drip-proof, bottom pouring valve seated within the pot allows for expansion and contraction. As it is subject to maximum temperatures at all times, possibility that



the valve may freeze is eliminated. A low cover-hood reduces metal loss by retarding metal oxidation, cutting down dross and reducing furnace heat loss. Unit operates on gas, electricity or oil. Takes about 2 hr to melt a full pot from a cold start. *Nolan Corp.*

For more data circle No. 51 on postcard, p. 113.

### Cleated conveyor belt

Designed to carry loads up steep inclines where regular flat-topped belts would allow slippage, new, cleated conveyor belt is available in a range of plies, cover thicknesses, widths and rubber compound to meet practically all customer specifications. Cleats made of rubber come in heights of  $\frac{3}{8}$ ,  $\frac{1}{2}$ , 1 and  $1\frac{1}{2}$  in. Cleat widths and base reinforcements give maximum wear under normal factory use. *Goodyear Tire & Rubber Co.*

For more data circle No. 52 on postcard, p. 113.

Turn Page

## YOUR 25 YEARS WITH KLINK + BLINK



"And remember this Pete? The first die you ever made for us with Columbia OILDIE!"

COLUMBIA TOOL STEEL COMPANY • CHICAGO HEIGHTS, ILL.

Producers of fine tool steels — All types immediately available through Sales Offices, Warehouses and Representatives in Principal Cities.



# SAVE!

## WITH A HANNIFIN AIR PRESS

It's the ideal press for that occasional pressing job. These presses operate off ordinary shop air supply. They're fast and safe. Over 30 models to choose from...many for either bench or floor mounting. Capacities from  $\frac{1}{2}$  to 18 tons. Daylight to 46 inches...reach to 12 inches. Prompt delivery.

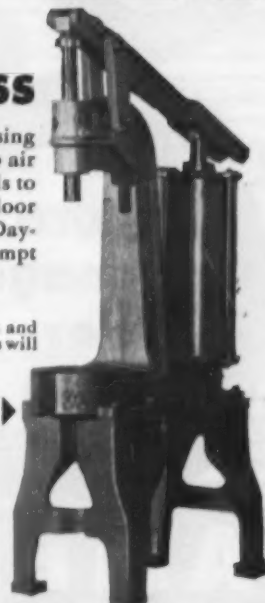


WRITE. Complete information and prices on Hannifin Air Presses will be sent on request.

6 Tons (Model B-2) One of more than 30 models. Press with base, \$554.

1-ton Hand-D-Press. For small parts manufacturers. Press, \$232.

Prices F.O.B. our press plant, St. Marys, Ohio, subject to change without notice.



# HANNIFIN

HANNIFIN CORPORATION, 513 S. WOLF ROAD, DES PLAINES, ILLINOIS

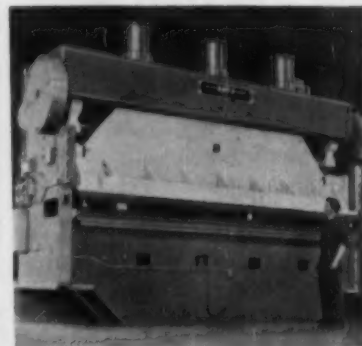


## New 150-ton—16-ft press brake

Bed and ram areas of this large 150-ton press type brake are 40 in. wide and 15 ft 8 in. long. The machine without die sets weighs 35 tons and is equipped with three air counterbalance cylinders. Stroke is 5 in., shut height between platens is 14 in. Features include extra large formica-lined slide areas, pneumatic clutch and brake, automatic overload release mecha-

nism and press-type electrical safety controls with interlocked foot controls. This particular machine has foot control both front and rear for operation from either side. Press can be used for piercing, blanking and shallow draw work on unusually large sheet panels. *Cyrl Bath Co.*

For more data circle No. 53 on postcard, p. 113.



## Boosts pressures and increases delivery rates

New compression transfer machine has been developed to boost pressures and increase delivery rates of air or inert gases delivered by standard compressors. The machine is a wheel-mounted unit containing hydraulic and electrical circuits for local and remote control of eight 6000 psi, 10-gal Greer accumulators which function as

pressure transfer barriers. Except for two remote control panels the unit is self-contained. Hinged doors and panels permit ready access to all components, and a local instrument panel provides instant visibility and access to all gages, valves and connections. *Greer Hydraulic, Inc.*

For more data circle No. 54 on postcard, p. 113.



## Giant puller

The 100-ton hydraulic industrial puller is designed to handle big tough pulling jobs on large diameter wheels, sheaves, sprockets and gears in industrial and utility plants as well as heavy equipment maintenance shops. The triple grip puller is powered by a new 100-ton



Power-Twin hydraulic ram. Jaws permit a 34½ in. reach for a maximum diameter of 48 in., a 36½ in. reach for a 36-in. diameter and a 38-in. reach for a 24-in. diam. New jaw adjustment permits greater ease of handling. Power-Twin unit can be removed for other maintenance jobs in the shop or field. *Owatonna Tool Co.*

For more data circle No. 55 on postcard, p. 113.

**more tonnage per edge**

**AMERICAN SHEAR KNIFE CO.**

HOMESTEAD, PENNSYLVANIA



## NEW EQUIPMENT

### Hydraulic gap presses

Available in 15 and 25-ton, hand-air-oil and motor driven models, a line of hydraulic gap presses have been designed with an adjustable bed that is easily and quickly raised or lowered to handle large or small pressing jobs. Bed plates are self-locking in any position by means of the new KRW



tilt lock that eliminates pins, bolts or blocks. Hand-air-oil models have an air-oil internal spring return type cylinder. Fifty pounds shop air pressure produces a ram travel of 8 ips down to the work. Motor operated models provide adjustable hydraulic pressure on both downward and return stroke of ram. Press frame construction provides maximum rigidity under full loads. *K. R. Wilson, Inc.*

For more data circle No. 56 on postcard, p. 113.

### Punched card control

Automatic control of machine tools uses punched business machine cards. Called Numerical Positioning Control, the system is capable of easy application and little machine modification is necessary to adapt it for use. Productivity on many machines on which it is installed can be doubled or tripled. The control reads positioning directions from punched holes in standard business machine cards. Directions are converted into positioning signals which direct the machine to the correct machining location. *General Electric Co.*

For more data circle No. 57 on postcard, p. 113.

# One Sure Way to CUT COSTS!

## use a C-F SHEET LIFTER



The A. B. Dick Company, Niles, Illinois, found that this C-F Lifter has substantially reduced man hours and crane time required to move stock in and out of storage.

Up to 10,000 lbs. of high grade sheets in varying widths may be picked up, carried and unloaded at shears or machines with speed and

economy by the Lifter and its operator.

C-F Lifters are made in standard or semi-special models to handle from 2 to 60 tons. Bulletin SL-25 describes the advantages you can obtain from C-F Lifters.

Write for it today.

### CULLEN-FRIESTEDT CO.

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Like to spend more time reading and less hunting? Turn to pages 2 and 3 of

*The Iron Age*

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**Digest of the Week in Metalworking**

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(Advertisement)

# What's New

## IN STEEL FROM STOCK

In the news today are many developments of interest to those who specify, buy or work with steel. Ways in which you can raise efficiency and lower costs in your operations may be suggested by the following summary.

Leaded plates—Now lead has been added to E-Z-Cut plate. As a result, E-Z-Cut, which was already considered one of the best free-machining plates on the market, is better than ever. Tests show that New E-Z-Cut cuts even faster, takes a sounder weld and polishes to a better finish than non-leaded E-Z-Cut. And because sulphur content is much lower, New E-Z-Cut is much cleaner steel, free from sulfide stringers. First stocks include thicknesses up through 3".

Biggest stainless steel plates now available from Ryerson stocks. This is the first time that 96" wide plates in thicknesses up to and including 1"—and heavier plates in 80" widths have been carried in stock at plants from coast to coast. Types on hand: 304, 304L, 316 and 316L. Next time, save welding on your big jobs with these bigger plates.

Delivered prices on tubing—Something new in simplified pricing is featured in a booklet just published by Ryerson. For buyers in the 16 metropolitan areas where large Ryerson tubing stocks are located, the booklet gives total delivered prices. There's no figuring to do—no factors to add. For buyers outside these metropolitan areas, a separate book gives prices per 100 feet and transportation charges. And beside every price in all books is a figure that tells you quickly and clearly when you can get a lower price by ordering just a few feet or pounds more. Copies on request.

Give steel-walled buildings a new look with stainless steel siding in mansard pattern, now available for quick shipment from Ryerson. (Galvanized and carbon steel sheets in mansard pattern also available.) The mansard pattern of widely spaced corrugations makes an unusually attractive wall and loss in total sheet area from pattern formation is slight—only about the same as with 2½" corrugated—previously the most economical pattern you could use. Maintenance-free stainless in mansard pattern also has many industrial and miscellaneous—architectural—ornamental applications. New Bulletin 70-5 on request.

New sizes of leaded alloys—Increasing demand for New Rycut 50, fastest machining .50 carbon alloy steel, has prompted Ryerson to increase the range of sizes in stock. Hot rolled rounds, both annealed and heat treated, are now available in large sizes—up through 9½". So heavy shafting, gears, cams, etc. can be produced at savings possible only with Rycut alloys.

Stainless pipe for welding applications—Now there's no need to wait for mill deliveries or to use expensive stabilized types when you want stainless pipe suitable for welding. Type 304L pipe, an extra low carbon type that eliminates the need for stress relieving after welding, has recently been added to Ryerson stocks. Size range: Schedule 40 welded pipe in commonly used sizes from ¼" through 2". Schedule 40 seamless in 3", 4" and 6" pipe sizes.

Supply situation on bars, structurals, plates and sheets—Heavy demand makes it difficult to keep all sizes of these products always on hand. However, we do have thousands of tons of steel ready for quick shipment and, since our stocks are being replenished continually, sizes that are not available today may be on hand tomorrow. So call us next time you need steel.



JOSEPH T. RYERSON & SON, INC. PLANTS: NEW YORK • BOSTON • PHILADELPHIA • CLEVELAND  
CHARLOTTE • CINCINNATI • DETROIT • PITTSBURGH • BUFFALO • CHICAGO  
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# The Iron Age SUMMARY . . .

**Diversion to flood areas aggravates steel shortage . . . Outlook gloomy as consumer pressure continues . . . Plate shortage endangers carbuilding program.**

**Now It's Floods . . .** Floods in the Northeast are an added starter in the tight steel market. Flood-stricken communities in New England and elsewhere are receiving preferential treatment on steel requirements for rehabilitation of bridges, highways, and other structures damaged or washed out by high waters.

There's no telling how much steel will be required for flood repairs, but producers and consumers already are anticipating a further tightening in supplies of structurals, plate, and other critical items.

Voluntary action by steel producers plus directives by the Government are expediting movement of critical steel items into the flood zone. Fourth quarter mill production schedules are being held in abeyance on some products.

**A Gloomy Picture . . .** The outlook for virtually all steel products is decidedly gloomy. Major consuming industries show no sign of easing their pressure for deliveries, which are running as much as two months behind promises in some instances. Heavy carryovers into 1956 are certain. Some producers are afraid it will be mid-1956 before flat-rolled deliveries become current.

Auto producers are giving fair warning to the mills that model changeovers will bring no letdown in their steel requirements. In fact, a large automotive company has advised his steel suppliers that he sees no possibility of a break in consumer demand for months to come.

**Carbuilders In Trouble . . .** The railroads, Johnny-come-latelies in the scramble for steel, are in a bad way for plates. Their ambitious carbuilding program is endangered by the scarcity of plates, which have been a tight steel item for months. They may have to cut back on their building program if the situation doesn't improve. And chances are it won't.

Intramill competition for a share of available raw steel is having a depressing effect on production of some products, notably bars. Mill product managers are fighting each other tooth and nail for the steel necessary to keep their rolling mills operating at top speed. As a result, some are not getting enough to operate at mill capacity.

**Mill Repair Problem . . .** On top of this, producers are still running into maintenance problems. The operating rate has been in the low 90s.

## Steel Output, Operating Rates

| Production<br>(Net tons, 000 omitted) | This<br>Week | Last<br>Week | Month<br>Ago | Year<br>Ago |
|---------------------------------------|--------------|--------------|--------------|-------------|
| <b>Production</b>                     | 2,269        | 2,186        | 2,098        | 1,525       |
| <b>Ingot Index</b><br>(1947-1949=100) | 141.0        | 136.1        | 130.6        | 94.9        |
| <b>Operating Rates</b>                |              |              |              |             |
| Chicago                               | 96.0         | 95.5         | 94.0         | 69.0        |
| Pittsburgh                            | 97.0         | 95.0*        | 95.0         | 64.0        |
| Philadelphia                          | 92.0         | 81.0         | ...          | 56.0        |
| Valley                                | 93.0         | 93.0         | 93.0         | 64.0        |
| West                                  | 97.0         | 97.0*        | 101.0        | 77.0        |
| Detroit                               | 88.0         | 57.0         | 89.0         | 74.0        |
| Buffalo                               | 100.0        | 100.0        | 100.0        | 56.5        |
| Cleveland                             | 98.0         | 96.5*        | 88.0         | 51.5        |
| Birmingham                            | 94.0         | 95.0         | 89.0         | 69.0        |
| So. Ohio River                        | 91.5         | 90.0*        | 86.0         | 74.0        |
| Wheeling                              | 96.0         | 95.0         | 93.0         | 77.0        |
| St. Louis                             | 105.0        | 104.0        | 98.0         | 56.0        |
| Northeast                             | 74.0         | 81.5         | 87.0         | 47.0        |
| <b>Aggregate</b>                      | 94.0         | 91.0         | 92.0         | 65.0        |

\*Revised

## Prices At A Glance

(cents per lb unless otherwise noted)

|                                 | This<br>Week | Week<br>Ago | Month<br>Ago | Year<br>Ago |
|---------------------------------|--------------|-------------|--------------|-------------|
| <b>Composite price</b>          |              |             |              |             |
| Finished Steel, base            | 5.174        | 5.174       | 5.174        | 4.801       |
| Pig Iron (Gross ton)            | \$59.05      | \$59.09     | \$59.09      | \$56.59     |
| Scrap, No. 1 hvy<br>(gross ton) | \$43.83      | \$43.83     | \$43.33      | \$28.67     |
| <b>Nonferrous</b>               |              |             |              |             |
| Aluminum, ingot                 | 23.20        | 23.20       | 23.20        | 22.20       |
| Copper, electrolytic            | 43.00        | 40.00       | 36.00        | 30.00       |
| Lead, St. Louis                 | 14.80        | 14.80       | 14.80        | 14.05       |
| Magnesium, ingot                | 29.25        | 29.25       | 29.25        | 27.75       |
| Nickel, electrolytic            | 67.67        | 67.67       | 67.67        | 63.08       |
| Tin, Straits, N. Y.             | 95.625       | 96.625      | 97.50        | 92.75       |
| Zinc, E. St. Louis              | 12.50        | 12.50       | 12.50        | 11.00       |



## Flood Jams Mill Schedules

**Fourth quarter structural schedules upset by huge rebuilding needs . . . Details still unknown . . . Wire, bars, plate will also be expedited to flooded areas.**

♦ **DELIVERY SCHEDULES** of eastern mills making a wide range of products used in building, bridge and highway construction have had a hitch thrown into them by flood damage. Not damage to the mills, which has now been pretty well cleared up in most of the units hit by the offshoot of Diane, but priorities.

Just as soon as bills of materials can be drawn, structural steel needed to rebuild the scores of washed-out bridges in the East and Northeast will be channeled into repairs. Reinforcing bar shipments may not be hit as soon but they will be affected as well. Wire rope, which has been relatively easy, is beginning to tighten. The same applies to constructional wire products, mesh, lath material, etc. Plate will be affected too.

As one steel sales official put it: "If there was any chance of seeing daylight this fall, and I'm not saying that chance was too big, this has washed it out." Fourth quarter structural programming is very uncertain now because exact needs are unknown and there's no telling on what sizes the axe will fall heaviest.

All of this, coupled with a seasonal demand increase in the fall, suggests that the tightest steel market since Korean War days is inevitable. Many in the industry will be surprised if it doesn't breed some gray market and some additional conversion activity.

Washington has authorized defense industries and defense supporting industries to slap priorities on reconstruction material. In some cases these may be necessary to establish need but steel companies have already begun surveying their regular customer

needs in the affected areas and generally will not demand priorities.

**SHEETS AND STRIP . . .** In the Pittsburgh area, deliveries are running nearly four months behind promises in some instances. Some consumers say that orders placed for September will not be delivered until December. And with the auto companies indicating there will be no letdown in their requirements, the outlook is gloomy. Carryovers into 1956 are a certainty. A new factor is Government action expediting movement of steel into flood-stricken Northeast. Some mid-western producers do not expect to become current on deliveries until mid-1956. U. S. Steel Corp. has announced price cuts on Columbium-bearing stainless types 347 and 348 ranging from 1¼¢ to 8½¢ per lb. These reductions reflect lower prices for raw materials. The company also cut some price bases for Types 302B, 304L and 316L to meet competition. Minor changes in extras are being made accordingly.

**BARS . . .** Detroit reports that some auto producers are in a bad way for carbon bars, reflecting the increasing tightness of this product as well as the automakers' switch from alloy to carbon bars for some applications. In Chicago, hot rolled bars are sold out for balance of the year. Cleveland producers say they could fill first quarter order books.

### Purchasing Agent's Checklist:

**STEEL:** Users scramble . . . . . p. 51

**CONSTRUCTION:** Housing demand will hold . . . . . p. 53

**PRICING:** New index for cast iron pipe . . . . . p. 57

**Trend to commercial jets booms aircraft builders . . . . . p. 79**

**PLATES . . .** Pittsburgh mills are running two months behind on deliveries and the outlook is for a worsening of the supply picture. The railroads, Johnny-come-latelies in the scramble for steel, reportedly will have to cut back on their freight car production schedules due to inability to obtain enough plates. But the same could be said for almost any consumer of this product, which has been tight for months.

**STRUCTURALS . . .** Requirements for flood-stricken areas put producers of this product in an almost impossible situation. One producer has called a halt on all fourth quarter programming until the needs of flooded communities are known. The flood struck at a time when deliveries in some districts were running as much as two months behind promises. Mills in the Pittsburgh area definitely are overbooked for 1955 and heavy carryovers into 1956 are expected.

**WIRE PRODUCTS . . .** Flooding of a major producer in the East has tightened the wire supply situation considerably. In Pittsburgh indications are that diversion of wire from a plant there to help out customers who depended on a sister plant in the flood area will put both plants three to four weeks behind schedules. Chicago reports that farm demand for most merchant wire products will show some improvement in the weeks ahead.

**TUBULAR PRODUCTS . . .** Tight plate market is adding more creases to the brows of electricweld line pipe producers. Demand for this product, which is made from plate, is extended into fourth quarter. The booming oil industry gives no sign of easing the pressure on oil country goods, which is competing strongly in some mills with mechanical tubing for a share of available steel. Butt weld pipe is still available for third quarter delivery, according to reports from Chicago.

**WAREHOUSE . . .** An increasing number of products are being placed on the "critical" list by many warehouses. Heavy and light plate and structurals are the latest additions. Hot rolled sheets are currently in stronger demand than cold rolled and galvanized. The warehouses, too, are having trouble obtaining scheduled deliveries from the mills and some expect an increasingly critical situation in sheets and strip.



# Comparison of Prices

(Effective Aug. 30, 1955)

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

|                                       | Aug. 30<br>1955 | Aug. 23<br>1955 | Aug. 1<br>1955 | Aug. 31<br>1954 |
|---------------------------------------|-----------------|-----------------|----------------|-----------------|
| <b>Flat-Rolled Steel: (per pound)</b> |                 |                 |                |                 |
| Hot-rolled sheets                     | 4.325¢          | 4.325¢          | 4.325¢         | 4.06¢           |
| Cold-rolled sheets                    | 5.325           | 5.325           | 5.325          | 4.95            |
| Galvanized sheets (10 ga.)            | 5.85            | 5.85            | 5.85           | 5.45            |
| Hot-rolled strip                      | 4.325           | 4.325           | 4.325          | 4.06            |
| Cold-rolled strip                     | 6.29            | 6.29            | 6.29           | 5.82            |
| Plate                                 | 4.52            | 4.52            | 4.52           | 4.237           |
| Plates wrought iron                   | 9.50            | 9.50            | 9.50           | 9.50            |
| Stain's C-R strip (No. 302)           | 44.50           | 44.50           | 44.50          | 41.50           |

|   |        |        |        |        |
|---|--------|--------|--------|--------|
| <b>Tin and Terplate: (per base box)</b> |        |        |        |        |
| Tinplate (1.50 lb.) coils               | \$9.05 | \$9.05 | \$9.05 | \$8.95 |
| Tinplate, electro (0.50 lb.)            | 7.75   | 7.75   | 7.75   | 7.65   |
| Special coated mfg. terms               | 7.85   | 7.85   | 7.85   | 7.75   |

|                                     |       |       |       |        |
|-------------------------------------|-------|-------|-------|--------|
| <b>Bars and Shapes: (per pound)</b> |       |       |       |        |
| Merchant bars                       | 4.65¢ | 4.65¢ | 4.65¢ | 4.312¢ |
| Cold-finished bars                  | 5.90  | 5.90  | 5.90  | 5.40   |
| Alloy bars                          | 5.65  | 5.65  | 5.65  | 5.075  |
| Structural shapes                   | 4.60  | 4.60  | 4.60  | 4.25   |
| Stainless bars (No. 302)            | 38.25 | 38.25 | 38.25 | 35.50  |
| Wrought iron bars                   | 10.40 | 10.40 | 10.40 | 10.40  |

|                          |       |       |       |       |
|--------------------------|-------|-------|-------|-------|
| <b>Wire: (per pound)</b> |       |       |       |       |
| Bright wire              | 6.25¢ | 6.25¢ | 6.25¢ | 5.75¢ |

|                             |         |         |         |        |
|-----------------------------|---------|---------|---------|--------|
| <b>Rails: (per 100 lb.)</b> |         |         |         |        |
| Heavy rails                 | \$4.725 | \$4.725 | \$4.725 | \$4.45 |
| Light rails                 | 5.65    | 5.65    | 5.65    | 5.35   |

|   |         |         |         |         |
|---|---------|---------|---------|---------|
| <b>Semi-finish Steel: (per net ton)</b> |         |         |         |         |
| Re-rolling billets                      | \$68.50 | \$68.50 | \$68.50 | \$64.00 |
| Slabs, re-rolling                       | 68.50   | 68.50   | 68.50   | 64.00   |
| Forging billets                         | 84.50   | 84.50   | 84.50   | 78.00   |
| Alloy blooms, billets, slabs            | 96.00   | 96.00   | 96.00   | 86.00   |

|  |        |        |        |        |
|--|--------|--------|--------|--------|
| <b>Wire Rod and Skelp: (per pound)</b> |        |        |        |        |
| Wire rods                              | 5.025¢ | 5.025¢ | 5.025¢ | 4.675¢ |
| Skelp                                  | 4.225  | 4.225  | 4.225  | 3.90   |

|  |        |        |        |        |
|--|--------|--------|--------|--------|
| <b>Finished Steel Composite: (per pound)</b> |        |        |        |        |
| Base price                                   | 5.174¢ | 5.174¢ | 5.174¢ | 4.801¢ |

**Finished Steel Composite**  
Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

**Pig Iron Composite**  
Based on averages for basic iron at Valley furnace and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

**Steel Scrap Composite**  
Average of No. 1 heavy melting steel scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.

|                                  | Aug. 30<br>1955 | Aug. 23<br>1955 | Aug. 1<br>1955 | Aug. 31<br>1954 |
|----------------------------------|-----------------|-----------------|----------------|-----------------|
| <b>Pig Iron: (per gross ton)</b> |                 |                 |                |                 |
| Foundry, del'd Phila.            | \$63.69         | \$63.69         | \$63.69        | \$61.19         |
| Foundry, Valley                  | 59.00           | 59.00           | 59.00          | 56.50           |
| Foundry, Southern, Cin'ti        | 62.93           | 62.93           | 62.93          | 60.45           |
| Foundry, Birmingham              | 55.00           | 55.00           | 55.00          | 52.50           |
| Foundry, Chicago                 | 66.00           | 66.00           | 66.00          | 63.50           |
| Basic, del'd Philadelphia        | 63.77           | 63.77           | 63.77          | 60.37           |
| Basic, Valley furnace            | 53.50           | 53.50           | 53.50          | 50.00           |
| Malleable, Chicago               | 59.00           | 59.00           | 59.00          | 56.50           |
| Malleable, Valley                | 59.00           | 59.00           | 59.00          | 56.50           |
| Ferromanganese, cents per lb.    | 9.50¢           | 9.50¢           | 9.50¢          | 10.00¢          |
| † 74-76 pct Mn base.             |                 |                 |                |                 |

|  |         |         |         |         |
|--|---------|---------|---------|---------|
| <b>Pig Iron Composite: (per gross ton)</b> |         |         |         |         |
| Pig iron                                   | \$59.00 | \$59.00 | \$59.00 | \$57.50 |

|                                |         |         |         |         |
|--------------------------------|---------|---------|---------|---------|
| <b>Scrap: (per gross ton)</b>  |         |         |         |         |
| No. 1 steel, Pittsburgh        | \$44.50 | \$44.50 | \$44.50 | \$29.50 |
| No. 1 steel, Phila. area       | 46.50   | 46.50   | 43.50   | 27.00   |
| No. 1 steel, Chicago           | 40.50   | 40.50   | 41.50   | 29.50   |
| No. 1 bundle, Detroit          | 38.50   | 38.50   | 38.50   | 23.50   |
| Low phos., Youngstown          | 47.50   | 46.50   | 44.50   | 31.50   |
| No. 1 mach'y cast, Pittsburgh  | 45.50   | 45.50   | 45.50   | 42.50   |
| No. 1 mach'y cast, Philadelp'a | 48.50   | 48.50   | 45.50   | 40.50   |
| No. 1 mach'y cast, Chicago     | 52.50   | 52.50   | 52.50   | 39.50   |

|   |         |         |         |         |
|---|---------|---------|---------|---------|
| <b>Steel Scrap Composite: (per gross ton)</b> |         |         |         |         |
| No. 1 heavy melting scrap                     | \$43.83 | \$43.83 | \$43.33 | \$28.67 |

|   |         |         |         |         |
|---|---------|---------|---------|---------|
| <b>Coke, Connellsville: (per net ton at oven)</b> |         |         |         |         |
| Furnace coke, prompt                              | \$18.35 | \$18.35 | \$18.35 | \$14.88 |
| Foundry coke, prompt                              | 18.35   | 18.35   | 18.35   | 18.75   |

|   |        |       |       |       |
|---|--------|-------|-------|-------|
| <b>Nonferrous Metals: (cents per pound to large buyers)</b> |        |       |       |       |
| Copper, electrolytic, Conn.                                 | 43.00  | 40.00 | 36.00 | 30.00 |
| Copper, Lake, Conn.   | 49.00  | 36.00 | 36.00 | 30.00 |
| Tin, Straits, New York                                      | 95.625 | 96.00 | 97.50 | 92.75 |
| Zinc, East St. Louis  | 12.50  | 12.50 | 12.50 | 11.00 |
| Lead, St. Louis   | 14.50  | 14.50 | 14.50 | 14.05 |
| Aluminum, virgin ingot                                      | 23.30  | 23.30 | 23.30 | 23.30 |
| Nickel, electrolytic  | 67.67  | 67.67 | 67.67 | 68.68 |
| Magnesium, ingot  | 29.35  | 29.35 | 29.35 | 27.75 |
| Antimony, Laredo, Tex.                                      | 33.50  | 33.50 | 33.50 | 33.50 |
| † Tentative. ‡ Average. * Revised.                          |        |       |       |       |

## PIG IRON

Dollars per gross ton, f.o.b. subject to switching charges.

## STAINLESS STEEL

Base price cents per lb. f.o.b. mill

←To identify producers, see Key on P. 143→

| Producing Point   | Basic | Fdy.  | Mall. | Bess. | Low Phos. |
|-------------------|-------|-------|-------|-------|-----------|
| Bethlehem B3      | 60.50 | 61.00 | 61.50 | 62.00 | .....     |
| Birdsboro, Pa. B6 | 60.50 | 61.00 | 61.50 | 62.00 | .....     |
| Birmingham R3     | 54.50 | 55.00 | ..... | ..... | .....     |
| Birmingham W9     | 54.50 | 55.00 | 59.00 | ..... | .....     |
| Birmingham U6     | 54.50 | 55.00 | 59.00 | ..... | .....     |
| Buffalo R3        | 54.50 | 59.00 | 59.50 | ..... | .....     |
| Buffalo H1        | 54.50 | 59.00 | 59.50 | ..... | .....     |
| Buffalo W6        | 54.50 | 59.00 | 59.50 | 60.00 | .....     |
| Chester C17       | 54.50 | 55.00 | 55.50 | ..... | .....     |
| Chicago J4        | 58.50 | 59.00 | 59.00 | 59.50 | .....     |
| Cleveland A5      | 58.50 | 59.00 | 59.00 | 59.50 | 63.50     |
| Cleveland R3      | 58.50 | 59.00 | 59.00 | ..... | .....     |
| Duquesne L3       | 55.00 | 55.00 | 55.00 | ..... | .....     |
| Duluth J4         | 58.50 | 59.00 | 59.00 | 59.50 | .....     |
| Erie J4           | 58.50 | 59.00 | 59.00 | 59.50 | .....     |
| Everett M6        | ..... | 61.00 | 61.50 | ..... | .....     |
| Fontana K1        | 44.50 | 65.00 | ..... | ..... | .....     |
| Genova, Utah C7   | 58.50 | 59.00 | ..... | ..... | .....     |
| Granite City G7   | 60.40 | 60.90 | 61.40 | ..... | .....     |
| Hubbard Y1        | ..... | ..... | 59.00 | ..... | .....     |
| Minneapolis C6    | 60.50 | 61.00 | 61.50 | ..... | .....     |
| Monessen P6       | 58.50 | ..... | ..... | ..... | .....     |
| Neville Is. P4    | 58.50 | 59.00 | 59.00 | ..... | .....     |
| N. Tonawanda T1   | ..... | 59.00 | 59.50 | ..... | .....     |
| Pittsburgh U1     | 58.50 | ..... | ..... | 59.50 | .....     |
| Sharpsville S3    | 58.50 | 59.00 | 59.00 | 59.50 | .....     |
| So. Chicago R3    | 55.50 | ..... | 59.00 | ..... | .....     |
| Steelton B3       | 60.50 | 61.00 | 61.50 | 62.00 | 65.50     |
| Swadeland A2      | 60.50 | 61.00 | 61.50 | 62.00 | .....     |
| Toledo J4         | 58.50 | 59.00 | 59.00 | 59.50 | .....     |
| Tray, N. Y. R3    | 60.50 | 61.00 | 61.50 | 62.00 | 65.50     |
| Youngstown Y1     | ..... | 59.00 | 59.50 | ..... | .....     |

\* DIFFERENTIALS: Add, 5¢ per ton for each 0.25 pct silicon over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 5¢ per ton for each 0.50 pct manganese over 1 pct, 12¢ per ton for 0.5 to 0.75 pct nickel, 31¢ for each additional, 0.25 pct nickel.

Silvery iron: Buffalo, H1, \$48.75; Jackson, J1, G1, \$67.50. Add \$1.00 per ton for each 0.50 pct silicon over base (\$0.1 to 0.50 pct) up to 17 pct. Add \$1 per ton for 0.75 pct or more phosphorus. Add 75¢ for each 0.50 pct manganese over 1.0 pct. Baseomer ferroaluminum prices are \$1 over comparable silvery iron.

\* Unrevised.

| Product                        | 301   | 302   | 303   | 304   | 316   | 321   | 348   | 410   | 416   | 430   |
|--------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Ingot, re-rolling              | 17.75 | 19.00 | —     | 20.25 | 31.50 | 25.00 | 33.75 | 15.00 | —     | 15.25 |
| Slabs, billets, re-rolling     | 22.25 | 24.75 | 26.75 | 26.00 | 40.25 | 32.00 | 43.00 | 19.50 | —     | 19.75 |
| Forg. discs, dis blocks, rings | —     | —     | —     | —     | —     | —     | —     | —     | —     | —     |
| Billets, forging               | —     | 32.00 | 34.75 | 33.75 | 51.25 | 36.25 | 51.00 | 25.50 | 26.00 | 26.00 |
| Bars, wires, structurals       | 38.00 | 38.25 | 41.00 | 40.25 | 60.75 | 45.25 | 60.00 | 30.50 | 31.00 | 31.00 |
| Plates                         | —     | 40.25 | —     | 43.00 | 64.00 | 49.25 | 64.75 | 31.75 | —     | 32.25 |
| Sheets                         | 44.25 | 44.50 | —     | 47.25 | 66.25 | 54.25 | 73.50 | 36.25 | —     | 36.75 |
| Strip, hot-rolled              | 32.00 | 34.50 | —     | 37.25 | 58.25 | 44.25 | 59.75 | —     | —     | —     |
| Strip, cold-rolled             | 41.00 | 44.50 | —     | 47.25 | 68.25 | 54.25 | 73.50 | 36.25 | —     | 36.75 |

## STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., C11; Brackenside, Pa., A3; Butler, Pa., A7; McKeesport, Pa., U1; Washington, Pa., W1, J2; Baltimore, Md., E1; Middletown, O., A7; Massillon, O., R3; Gary, Ind., U1; Bridgeville, Pa., U3; New Castle, Ind., J2; Ft. Wayne, Ind., J4; Philadelphia, Pa., D3.

Strip: Midland, Pa., C11; Cleveland, A5; Carnegie, Pa., S9; McKeesport, Pa., F1; Reading, Pa., C2; Washington, Pa., W2; W. Lechburg, Pa., A3; Bridgeville, Pa., U2; Detroit, Md., M2; Canton-Massillon, O., R3; Middletown, O., A7; Harrison, N. J., D3; Youngstown, Pa., S3; Sharon, Pa., S1; Butler, Pa., A7; Wallingford, Conn., U3 (25¢ per lb higher); W1 (25¢ per lb higher); New Bedford, Mass., R6.

Bars: Baltimore, Md., E1; Duquesne, Pa., U1; Munhall, Pa., U1; Reading, Pa., C2; Titusville, Pa., U2; Washington, Pa., W2; McKeesport, Pa., U1, F1; Bridgeville, Pa., U2; Dunkirk, N. Y., A3; Massillon, O., R3; Chicago, Ill., J4; Syracuse, N. Y., C11; Watervliet, N. Y., A3; Waukegan, Ill., A3; Canton, O., T5; Ft. Wayne, Ind., J4; Philadelphia, Pa., D3; Detroit, Md., R5.

Wires: Waukegan, Ill., A3; Massillon, O., R3; McKeesport, Pa., F1; Ft. Wayne, Ind., J4; Harrison, N. J., D3; Baltimore, Md., E1; Dunkirk, N. Y., A3; Monaca, Pa., F1; Syracuse, N. Y., C11; Bridgeville, Pa., U2.

Structurals: Baltimore, Md., E1; Massillon, O., R3; Chicago, Ill., J4; Watervliet, N. Y., A3; Syracuse, N. Y., C11.

Plates: Brackenside, Pa., A3; Chicago, Ill., U1; Munhall, Pa., U1; Midland, Pa., C11; New Castle, Ind., J2; Middletown, A7; Washington, Pa., J2; Cleveland, Massillon, R3; Coatesville, Pa., C13; Philadelphia, Pa., D3.

Forged discs, dis blocks, rings: Pittsburgh, Pa., C11; Syracuse, N. Y., C11; Ferndale, Mich., A3; Washington, Pa., J2.

Forgings billets: Midland, Pa., C11; Baltimore, Md., E1; Washington, Pa., J2; McKeesport, Pa., F1; Massillon, Canton, O., R3; Watervliet, A3; Pittsburgh, Chicago, Ill., U1; Syracuse, N. Y., C11; Detroit, Md., R5.

## Mills Hold Off New Buying

**Prices steady as major centers report lagging activity . . . Most shipments are on old orders . . . Decisive price action, new buys expected shortly.**

♦ **FOR THE** second straight week, the scrap market showed sluggish activity and little price action. Mills are holding off on new orders until old ones are cleared up. There has not been enough new buying for any exact evaluation of market condition.

However, consumer scrap inventories are getting low. Placement of heavy new orders has got to come soon.

The next 2 weeks should show whether the present lull is only a temporary check or a turning point to be followed by falling prices. There is no reason to expect any weakening. Scrap supply is tight; export is strong; steel orders are certainly holding up. But it is a fact that late August has seen a slowdown in market activity.

Reflecting unchanged prices of steelmaking grades at major centers, THE IRON AGE Composite for No. 1 heavy melting steel scrap remains at \$43.83.

**Pittsburgh . . .** The market continues in a static condition without a major mill purchase. Broker buying reports range from \$42 to \$44 for No. 1 heavy melting, but are few and far between. Brokers and mills continue to sit tight with heavy price resistance from the mills and the majority of brokers unwilling to talk of a market under \$45. Blast furnace grades are up \$1.50 a ton on the basis of the most recent sales. Other grades are unchanged.

**Philadelphia . . .** Unchanging prices levels should not be interpreted as any sign of weakness in this market. Consumers are resisting higher prices and some scrap has been available within quoted price spreads. A strong export market and not particularly heavy mill inventories prevent any significant weakness developing as long as the operating rate holds to its current

level. Major purchases, expected momentarily, should establish the market.

**Chicago . . .** Feeling here is that market activity will pick up later this week or early next week. At the moment, no mills are reported in the buying picture and prices are holding to previous levels. Continued heavy demand for scrap is reported. Feeling is that most mill inventories are not too good. It appears that dealers are currently willing to hold their scrap in anticipation of strengthening prices as new mill orders begin coming in.

**New York . . .** The scrap market here remains strong and tight. Charging box cast and heavy breakable cast advanced \$1. No. 2 bundles moved up \$1. Most domestic activity is still on old orders but these are pretty well cleaned up and brokers look for the mills to come in for heavy tonnage soon.

**Detroit . . .** Scrap prices were unchanged this week despite the fact that some of the new auto lists were up \$1. The market is expected to maintain its strong position for at least another month. There are two reasons for this. Local mills, which have been shying away from the present high prices, are going to be forced to come into the market soon for substantial tonnages. The amount of scrap on the new lists is off at least 35 pct from last month. Meanwhile, activity is at a standstill here with the mills waiting until all the lists are sold.

**Cleveland . . .** Underlying strength of market in general area was confirmed last week with purchase by a fringe mill of substantial tonnage at \$47 for No. 1 heavy melting. Secondary grades continue weak, however, with inspection tough and most dealers looking for out-of-town markets. Cleveland market continues dull. Incoming yard scrap falling off due to

auto model changeovers. Steel foundry market in Cleveland continues strong with rails selling for \$2-3 higher and hard-to-get malleable up \$1.

**Birmingham . . .** With reasonably high inventories, openhearth consumers continue out of the market, although high export prices are taking the scrap away. Electric furnace grades are inching up with some special grades jumping \$2. Foundries are refusing to pay more than \$47 for cupola cast, and some are receiving practically no scrap, being content to use straight pig iron in order to hold the present price level.

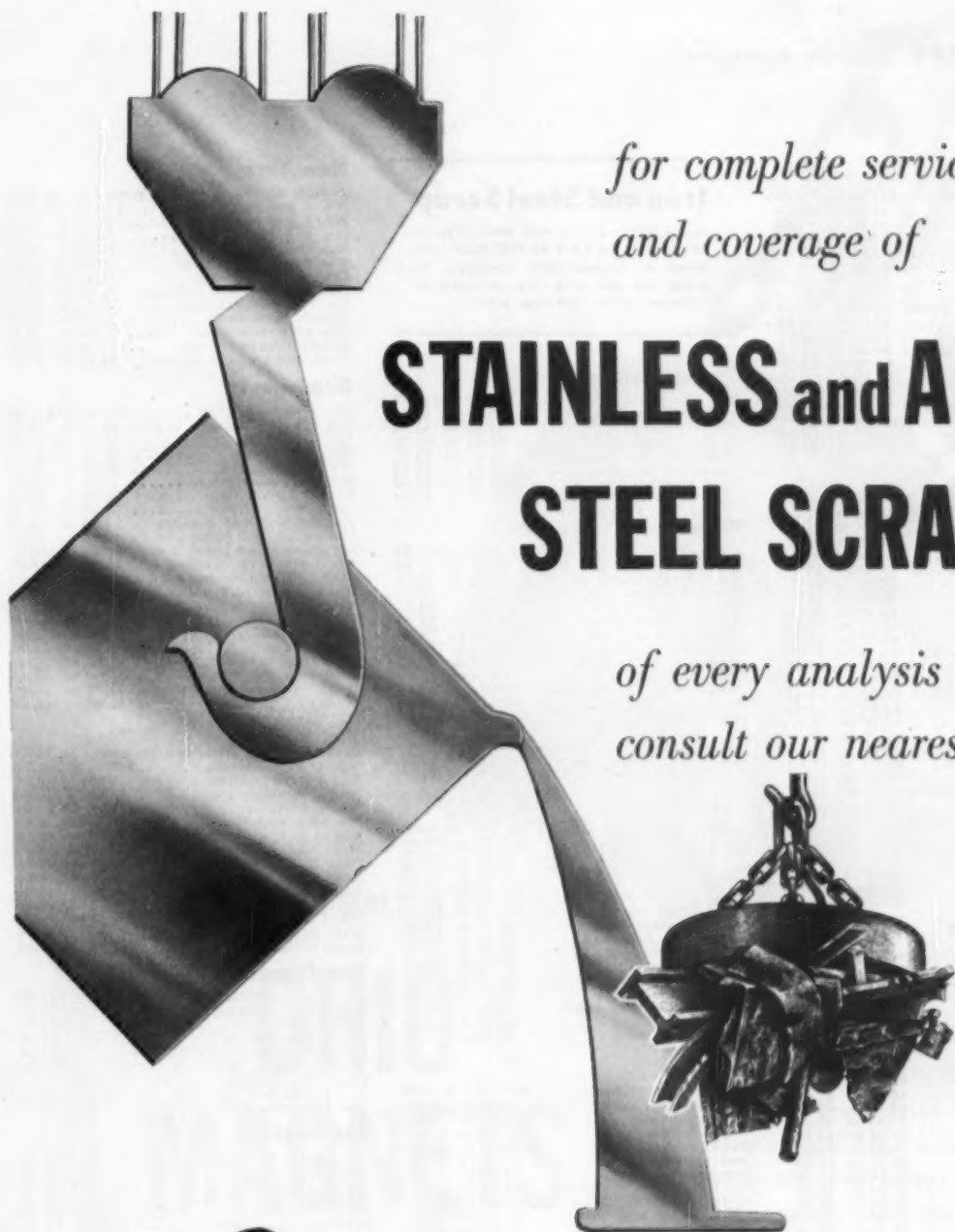
**St. Louis . . .** Higher prices paid for a railroad list of 50 carloads, and demand for RR specialties have resulted in advances of \$1 a ton for RR hvy melting and some specialties. Otherwise, prices are unchanged. The market is stable and no price changes are expected until sometime in September. Receipts are equal to the melt and mills are not inclined to pile up scrap at present levels.

**Cincinnati . . .** Dealer talk was pessimistic in Cincinnati this week pending announcement of purchases for September. Some scrap still being barged to Pittsburgh on tail end of old orders with no major new sales made. Surface price weakness apparent but underlying strength continues.

**Buffalo . . .** New buying here by Valley consumers is reported within current price ranges. Scrap is moving in heavy volume as brokers are shipping against old orders to local mills. Cast scrap is changing hands at old price levels. New local buying in steelmaking grades is expected in coming weeks.

**Boston . . .** Holding prices and light activity mark the Boston scrap picture. Scrap is finding few takers at current prices as the area reports lagging activity for the second straight week.

**West Coast . . .** Market is tightening in San Francisco and Los Angeles. Mills report it's nip and tuck to get their melt. Reason: strong domestic metalworking activity on one hand, feverish exporting on the other. Seattle market continues steady. Japanese steel mills are stepping up their activity, increasing demand for Coast scrap.



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# Scrap Prices

(Effective Aug. 29, 1955)

## Pittsburgh

|                           |                    |
|---------------------------|--------------------|
| No. 1 hvy. melting        | \$44.00 to \$45.00 |
| No. 2 hvy. melting        | 41.00 to 42.00     |
| No. 1 bundles             | 44.00 to 45.00     |
| No. 2 bundles             | 37.00 to 38.00     |
| Machine shop turn.        | 29.00 to 30.00     |
| Mixed bor. and ms. turns  | 29.00 to 30.00     |
| Shoveling turnings        | 23.00 to 25.00     |
| Cast iron borings         | 22.00 to 23.00     |
| Low phos. punch'gs, plate | 48.00 to 49.00     |
| Heavy turnings            | 42.00 to 43.00     |
| No. 1 RR. hvy. melting    | 47.00 to 48.00     |
| Scrap rails, random lgth. | 50.50 to 51.50     |
| Rails 2 ft and under      | 54.00 to 55.00     |
| RR. steel wheels          | 61.50 to 62.50     |
| RR. spring steel          | 61.50 to 62.50     |
| RR. couplers and knuckles | 61.50 to 62.50     |
| No. 1 machinery cast.     | 46.00 to 47.00     |
| Cupola cast.              | 41.00 to 42.00     |
| Heavy breakable cast.     | 36.00 to 37.00     |

## Chicago

|                            |                    |
|----------------------------|--------------------|
| No. 1 hvy. melting         | \$40.00 to \$41.00 |
| No. 2 hvy. melting         | 34.00 to 35.00     |
| No. 1 factory bundles      | 44.00 to 45.00     |
| No. 1 dealers' bundles     | 40.00 to 41.00     |
| No. 2 dealers' bundles     | 31.00 to 32.00     |
| Machine shop turn.         | 27.00 to 28.00     |
| Mixed bor. and turn.       | 29.00 to 30.00     |
| Shoveling turnings         | 29.00 to 30.00     |
| Cast iron borings          | 29.00 to 30.00     |
| Low phos. forge crops      | 48.00 to 49.00     |
| Low phos. punch'gs, plate  | 48.00 to 49.00     |
| Low phos. 2 ft and under   | 45.00 to 46.00     |
| No. 1 RR. hvy. melting     | 47.00 to 48.00     |
| Scrap rails, random lgth.  | 52.00 to 53.00     |
| Rolling rails              | 44.00 to 45.00     |
| Rails 2 ft and under       | 57.00 to 58.00     |
| Locomotive tires, cut      | 45.00 to 46.00     |
| Cut bolsters & side frames | 48.00 to 49.00     |
| Angles and splice bars     | 53.00 to 54.00     |
| RR. steel car axles        | 64.00 to 65.00     |
| RR. couplers and knuckles  | 60.00 to 61.00     |
| No. 1 machinery cast.      | 52.00 to 53.00     |
| Cupola cast.               | 47.00 to 48.00     |
| Heavy breakable cast.      | 29.00 to 30.00     |
| Cast iron brake shoes      | 37.00 to 38.00     |
| Cast iron car wheels       | 37.00 to 38.00     |
| Malleable                  | 51.00 to 52.00     |
| Stove plate                | 38.00 to 40.00     |

## Philadelphia Area

|                            |                    |
|----------------------------|--------------------|
| No. 1 hvy. melting         | \$46.00 to \$47.00 |
| No. 2 hvy. melting         | 40.00 to 41.00     |
| No. 1 bundles              | 46.00 to 47.00     |
| No. 2 bundles              | 38.00 to 39.00     |
| Machine shop turn.         | 27.50 to 28.50     |
| Mixed bor. and short turn. | 27.50 to 28.50     |
| Cast iron borings          | 27.50 to 28.50     |
| Shoveling turnings         | 30.00 to 31.00     |
| Clean cast chem. borings   | 27.00 to 28.00     |
| Low phos. 2 ft and under   | 48.00 to 49.00     |
| Low phos. 2 ft and under   | 49.00 to 50.00     |
| Low phos. punch'gs         | 49.00 to 50.00     |
| Elec. furnace bundles      | 47.00 to 48.00     |
| Heavy turnings             | 45.00 to 46.00     |
| RR. steel wheels           | 58.00 to 59.00     |
| RR. spring steel           | 49.00 to 50.00     |
| Rails 18 in. and under     | 53.00 to 54.00     |
| Cupola cast.               | 36.00 to 37.00     |
| Heavy breakable cast.      | 44.00 to 45.00     |
| Cast iron car wheels       | 49.00 to 50.00     |
| Malleable                  | 50.00 to 51.00     |
| Unstripped motor blocks    | 38.00 to 39.00     |
| No. 1 machinery cast.      | 46.00 to 47.00     |

## Cleveland

|                                     |                    |
|-------------------------------------|--------------------|
| No. 1 hvy. melting                  | \$43.50 to \$44.50 |
| No. 2 hvy. melting                  | 38.00 to 39.00     |
| No. 1 bundles                       | 43.50 to 44.50     |
| No. 2 bundles                       | 35.00 to 36.00     |
| No. 1 busheling                     | 45.50 to 46.50     |
| Machine shop turn.                  | 24.00 to 25.00     |
| Mixed bor. and turn.                | 27.00 to 28.00     |
| Shoveling turnings                  | 27.00 to 28.00     |
| Cast iron borings                   | 27.00 to 28.00     |
| Cut struct'l & plates, 2 ft & under | 49.00 to 50.00     |
| Drop forge flashings                | 43.00 to 44.00     |
| Low phos. punch'gs, plate           | 44.00 to 45.00     |
| Foundry steel, 2 ft & under         | 48.00 to 49.00     |
| No. 1 RR. heavy melting             | 44.50 to 45.50     |
| Rails 2 ft and under                | 56.00 to 57.00     |
| Rails 18 in. and under              | 57.00 to 58.00     |
| Railroad grate bars                 | 36.00 to 37.00     |
| Steel axle turnings                 | 29.00 to 30.00     |
| Railroad cast.                      | 49.00 to 50.00     |
| No. 1 machinery cast.               | 49.00 to 50.00     |
| Stove plate                         | 45.00 to 46.00     |
| Malleable                           | 51.00 to 52.00     |

## Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

## Youngstown

|                    |                    |
|--------------------|--------------------|
| No. 1 hvy. melting | \$46.00 to \$47.00 |
| No. 2 hvy. melting | 41.00 to 42.00     |
| No. 1 bundles      | 46.00 to 47.00     |
| No. 2 bundles      | 39.00 to 40.00     |
| Machine shop turn. | 24.00 to 25.00     |
| Shoveling turnings | 29.00 to 30.00     |
| Cast iron borings  | 29.00 to 30.00     |
| Low phos. plate    | 47.00 to 48.00     |

## Buffalo

|                           |                    |
|---------------------------|--------------------|
| No. 1 hvy. melting        | \$39.00 to \$40.00 |
| No. 2 hvy. melting        | 36.00 to 37.00     |
| No. 1 busheling           | 39.00 to 40.00     |
| No. 1 bundles             | 39.00 to 40.00     |
| No. 2 bundles             | 33.00 to 34.00     |
| Machine shop turn.        | 27.00 to 28.00     |
| Mixed bor. and turn.      | 29.00 to 30.00     |
| Shoveling turnings        | 29.00 to 30.00     |
| Cast iron borings         | 29.00 to 30.00     |
| Low phos. plate           | 45.00 to 46.00     |
| Scrap rails, random lgth. | 47.00 to 48.00     |
| Rails 2 ft and under      | 52.00 to 53.00     |
| RR. steel wheels          | 45.00 to 46.00     |
| RR. spring steel          | 48.00 to 49.00     |
| RR. couplers and knuckles | 48.00 to 49.00     |
| No. 1 machinery cast.     | 43.00 to 44.00     |
| No. 1 cupola cast.        | 40.00 to 41.00     |

## Detroit

|   |                    |
|---|--------------------|
| Brokers buying prices per gross ton, on cars: |                    |
| No. 1 hvy. melting                            | \$38.00 to \$39.00 |
| No. 2 hvy. melting                            | 39.00 to 40.00     |
| No. 1 bundles, openhearth                     | 38.00 to 39.00     |
| No. 2 bundles                                 | 25.00 to 26.00     |
| New busheling                                 | 38.00 to 39.00     |
| Drop forge flashings                          | 37.50 to 38.50     |
| Machine shop turn.                            | 21.00 to 22.00     |
| Mixed bor. and turn.                          | 23.00 to 24.00     |
| Shoveling turnings                            | 23.00 to 24.00     |
| Cast iron borings                             | 23.00 to 24.00     |
| Low phos. punch'gs, plate                     | 38.00 to 39.00     |
| No. 1 cupola cast                             | 39.00 to 40.00     |
| Heavy breakable cast.                         | 32.00 to 33.00     |
| Stove plate                                   | 34.00 to 35.00     |
| Automotive cast.                              | 42.00 to 43.00     |

## St. Louis

|                         |                    |
|-------------------------|--------------------|
| No. 1 hvy. melting      | \$36.50 to \$37.50 |
| No. 2 hvy. melting      | 34.00 to 35.00     |
| No. 1 bundles           | 36.50 to 37.50     |
| No. 2 bundles           | 29.50 to 30.50     |
| Machine shop turn.      | 23.00 to 24.00     |
| Cast iron borings       | 27.00 to 28.00     |
| Shoveling turnings      | 27.00 to 28.00     |
| No. 1 RR. hvy. melting  | 43.00 to 44.00     |
| Rails, random lengths   | 47.00 to 48.00     |
| Rails, 18 in. and under | 52.00 to 53.00     |
| Locomotive tires uncut  | 41.00 to 42.00     |
| Std. steel car axles    | 43.00 to 44.00     |
| Angles and splice bars  | 45.00 to 46.00     |
| RR. specialties         | 46.00 to 47.00     |
| Cupola cast.            | 45.00 to 46.00     |
| Heavy breakable cast.   | 35.00 to 36.00     |
| Cast iron brake shoes   | 37.00 to 38.00     |
| Stove plate             | 38.00 to 39.00     |
| Cast iron car wheels    | 42.00 to 43.00     |
| Malleable               | 42.50 to 43.50     |
| Unstripped motor blocks | 38.50 to 39.50     |

## Boston

|   |                    |
|---|--------------------|
| Brokers buying prices per gross ton, on cars: |                    |
| No. 1 hvy. melting                            | \$35.00 to \$36.00 |
| No. 2 hvy. melting                            | 28.00 to 29.00     |
| No. 1 bundles                                 | 35.00 to 36.00     |
| No. 2 bundles                                 | 25.50 to 26.50     |
| No. 1 busheling                               | 35.00 to 36.00     |
| Elec. furnace, 2 ft & under                   | 36.00 to 37.00     |
| Machine shop turn.                            | 17.50 to 18.50     |
| Mixed bor. and short turn.                    | 20.00 to 21.00     |
| Shoveling turnings                            | 21.00 to 22.00     |
| Clean cast chem. borings                      | 18.00 to 19.00     |
| No. 1 machinery cast.                         | 21.00 to 22.00     |
| Mixed cupola cast.                            | 29.00 to 30.00     |
| Heavy breakable cast.                         | 31.00 to 32.00     |
| Stove plate                                   | 28.00 to 29.00     |
| Unstripped motor blocks                       | 17.00 to 18.00     |

## New York

|   |                    |
|---|--------------------|
| Brokers buying prices per gross ton, on cars: |                    |
| No. 1 hvy. melting                            | \$40.50 to \$41.50 |
| No. 2 hvy. melting                            | 35.00 to 36.00     |
| No. 2 bundles                                 | 32.00 to 33.00     |
| Machine shop turn.                            | 18.00 to 19.00     |
| Mixed bor. and turn.                          | 20.00 to 21.00     |
| Shoveling turnings                            | 21.00 to 22.00     |
| Clean cast chem. borings                      | 21.00 to 22.00     |
| No. 1 machinery cast.                         | 37.00 to 38.00     |
| Mixed yard cast.                              | 32.00 to 33.00     |
| Charging box cast.                            | 37.00 to 38.00     |
| Heavy breakable cast.                         | 37.00 to 38.00     |
| Unstripped motor blocks                       | 24.00 to 25.00     |

## Birmingham

|                             |                    |
|-----------------------------|--------------------|
| No. 1 hvy. melting          | \$32.00 to \$33.00 |
| No. 2 hvy. melting          | 28.00 to 29.00     |
| No. 1 bundles               | 22.00 to 23.00     |
| No. 2 bundles               | 24.00 to 25.00     |
| No. 1 busheling             | 32.00 to 33.00     |
| Machine shop turn.          | 21.00 to 22.00     |
| Shoveling turnings          | 25.00 to 26.00     |
| Cast iron borings           | 17.00 to 18.00     |
| Electric furnace bundles    | 34.00 to 35.00     |
| Bar crops and plate         | 40.00 to 41.00     |
| Structural and plate, 2 ft. | 39.00 to 40.00     |
| No. 1 RR. hvy. melting      | 38.00 to 39.00     |
| Scrap rails, random lgth.   | 46.00 to 47.00     |
| Rails, 18 in. and under     | 50.00 to 51.00     |
| Angles & splice bars        | 47.00 to 48.00     |
| Rolling rails               | 53.00 to 54.00     |
| No. 1 cupola cast.          | 45.00 to 46.00     |
| Stove plate                 | 43.00 to 44.00     |
| Charging box cast.          | 27.00 to 28.00     |
| Cast iron car wheels        | 26.00 to 27.00     |
| Unstripped motor blocks     | 35.00 to 36.00     |
| Mashed tin cans             | 15.00 to 16.00     |

## Cincinnati

|   |                    |
|---|--------------------|
| Brokers buying prices per gross ton, on cars: |                    |
| No. 1 hvy. melting                            | \$29.00 to \$30.00 |
| No. 2 hvy. melting                            | 35.00 to 36.00     |
| No. 1 bundles                                 | 39.00 to 40.00     |
| No. 2 bundles                                 | 33.00 to 34.00     |
| Machine shop turn.                            | 27.00 to 28.00     |
| Mixed bor. and turn.                          | 24.00 to 25.00     |
| Shoveling turnings                            | 32.00 to 33.00     |
| Cast iron borings                             | 24.00 to 25.00     |
| Low phos. 18 in. & under                      | 43.00 to 44.00     |
| Rails, random lengths                         | 44.00 to 45.00     |
| Rails, 18 in. and under                       | 51.00 to 52.00     |
| No. 1 cupola cast.                            | 44.00 to 45.00     |
| Hvy. breakable cast.                          | 38.00 to 39.00     |
| Drop broken cast.                             | 49.00 to 50.00     |

## San Francisco

|                        |         |
|------------------------|---------|
| No. 1 hvy. melting     | \$32.00 |
| No. 2 hvy. melting     | 30.00   |
| No. 1 bundles          | 32.00   |
| No. 2 bundles          | 27.00   |
| No. 3 bundles          | 23.00   |
| Machine shop turn.     | 12.00   |
| Cast iron borings      | 11.00   |
| No. 1 RR. hvy. melting | 32.00   |
| No. 1 cupola cast.     | 45.00   |

## Los Angeles

|                            |         |
|----------------------------|---------|
| No. 1 hvy. melting         | \$32.00 |
| No. 2 hvy. melting         | 30.00   |
| No. 1 bundles              | 32.00   |
| No. 2 bundles              | 25.00   |
| No. 3 bundles              | 22.00   |
| Machine shop turn.         | 10.00   |
| Shoveling turnings         | 12.00   |
| Cast iron borings          | 12.00   |
| Elec. furn. 1 ft and under | 32.00   |
| No. 1 RR. hvy. melting     | 32.00   |
| No. 1 cupola cast.         | 42.00   |

## Seattle

|                    |         |
|--------------------|---------|
| No. 1 hvy. melting | \$33.00 |
| No. 2 hvy. melting | 29.00   |
| No. 2 bundles      | 23.00   |
| No. 3 bundles      | 19.00   |
| No. 1 cupola cast. | 35.00   |
| Mixed yard cast.   | 35.00   |

## Hamilton, Ont.

|                           |                  |
|---------------------------|------------------|
| No. 1 hvy. melting        | \$38.50          |
| No. 2 hvy. melting        | 35.50            |
| No. 1 bundles             | 38.50            |
| No. 2 bundles             | 32.50            |
| Mixed steel scrap         | 32.50            |
| Bushings                  | 33.50            |
| Bush., new fact. prep'd   | 36.50            |
| Bush., new fact. unprep'd | 32.50            |
| Machine shop turn.        | 16.00            |
| Short steel turn.         | 25.50            |
| Mixed bor. and turn.      | \$16.00 to 17.00 |
| Rails, rerolling          | 47.50            |
| Cast scrap                | 42.00 to 45.00   |





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Size for size, Ohio Magnets lift larger loads over longer periods because they *operate cooler*. So for extra magnet lifting power, extra magnet value—always specify Ohio Magnets and Ohio Magnet Controllers. There's a type and size for every lifting job. Send for free copy of Bulletin 112, or consult the Yellow Pages for Ohio offices in principal cities.

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President

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September 1, 1955

# Pressure Pushes Copper Price Up

**Anaconda again leads in second round of price increases . . . Pressure from Chile seen as key to latest move . . . Kennecott lags again.**

♦ **COPPER** . . . Barely 10 days after the initial 4¢ increase in the price of domestic electrolytic copper to 40¢ per lb, Anaconda Co. again took the lead in announcing a second price increase to 43¢ per lb.

As before, Phelps Dodge, and American Smelting & Refining followed in 24 hours. Kennecott, which had lagged slightly on the first increase, lagged also on the second.

The second increase seemed to take most of the industry by surprise. Many executives professed ignorance as to the reason behind the move, other than supply and demand. But there was more to it than that.

The answer is pressure—carefully and diplomatically but firmly exerted by the Chilean government.

Two of the larger American firms, Anaconda and Kennecott, have extensive interests in Chile. Until recently all of the copper mined there was sold by the Chilean government with the money received in exchange, less royalties, being turned over to the mining companies. This, of course, gave the country control of market selection.

This system was changed to permit Braden Co., the Kennecott subsidiary, and Chile Copper Co., the

Anaconda offshoot, to select their own markets. Since their ties are with the United States the tendency would be to channel as much of the mined metal as possible to this country to help alleviate the shortage.

However, the difference in the American and European price is such as to make it considerably less profitable for Chile whose economy depends to a great extent on its copper sale. The Chilean Board which advises on copper matters has been putting firm pressure on the American subsidiaries to sell in Europe. The only way copper could be diverted to the U. S. in any quantity would be a higher American price and increased profit for Chile. The first price bump was not enough—more pressure and thus a second increase.

The fact that the Anaconda holdings produce almost twice as much copper as Kennecott's could explain why the pressure forced Anaconda up first.

**BRASS** . . . In addition to heavy machinery, many of the brass mills in the Naugatuck valley of Connecticut still feature tree limbs, stumps, mud and silt on the first floor of their plants. A rundown of the worst hit organizations indicates a slightly more optimistic view for return to production. However, basic estimates as to

the extent and cost of the damage are proving to be, on the whole, quite accurate as the water and debris soaked plants are pumped out and cleaned.

American Brass plants in Waterbury, Ansonia and Torrington report that before the flood waters receded they reached as high as 17½ ft. Clean-up operations are going on around the clock. However, an average of 8 ft of mud and silt covered the floors and machinery, and no accurate estimate of cost or production schedule is yet available. In order to cope with the critical customer situation American has set up an emergency board whose job it is to oversee reallocation of orders and raw materials. All transfer of orders from the valley mills to western plants at Kenosha, Buffalo and Detroit are frozen unless they bear the stamp of approval from the board.

Chase Brass & Copper reports a 24-hour clean-up operation. It also shows optimism based primarily on the smooth and rapid progress of the clean-up squads. Original estimate of \$1-\$2 million damages seems accurate.

Plume & Attwood Mfg. has its mill back in operation. However, reports from the fabricating plant indicate that there is still considerable debris to be removed. They estimate damage at \$100,000 for the mill and \$300,000 for the fabricating shop.

Seymour Mfg. the other member of the hardest hit quartet, expresses a much brighter view than originally. Machinery manufacturing companies' experts are examining the damaged machinery with a view toward rapid rehabilitation and an early start on production. Seymour can depend upon water from its own wells and its own auxiliary power, thus has fewer problems.

Meanwhile Uncle Sam has stepped in with moves aimed at settling the difficulty for both present and future. Some 26,000 tons of copper, normally destined for defense contractors, have been diverted to flood ravaged industry. The Office of Defense Mobilization has announced a policy for expediting shipments of steel, copper and aluminum to flood areas.

**ALUMINUM** . . . Kaiser Aluminum & Chemical Co. came to an agreement with the C.I.O. Steelworkers Union for an average hourly wage increase of 15¢ for all production and maintenance workers and 18¢ for office and clerical staffs. Kaiser had already raised its prices along with Alcoa and Reynolds over a month ago.

## Daily Nonferrous Metal Prices

(Cents per lb except as noted)

|                         | Aug. 24 | Aug. 25 | Aug. 26 | Aug. 27 | Aug. 29 | Aug. 30 |
|-------------------------|---------|---------|---------|---------|---------|---------|
| Copper, electro, Conn.  | 40.00   | 40.00   | 43.00   | ....    | 43.00   | 43.00   |
| Copper, Lake, delivered | 40.00   | 40.00   | 40.00   | ....    | 40.00   | 40.00   |
| Tin, Straits, New York  | 96.25   | 96.125  | 96.00   | 96.00   | 95.625  | 95.625* |
| Zinc, East St. Louis    | 12.50   | 12.50   | 12.50   | 12.50   | 12.50   | 12.50   |
| Lead, St. Louis         | 14.80   | 14.80   | 14.80   | 14.80   | 14.80   | 14.80   |

Note: Quotations are going prices

\*Tentative

# Nonferrous Prices (Effective Aug. 30, 1955)

## MILL PRODUCTS

(Cents per lb, unless otherwise noted)

### Aluminum

(Base 20,000 lb, f.o.b. ship. pt., frt. allowed)

| Alloy             | Flat Sheet |           |                 | Plate     |
|-------------------|------------|-----------|-----------------|-----------|
|                   | 0.032 in.  | 0.061 in. | 0.136-0.249 in. | 3.000 in. |
| 1100, 3003.....   | 40.8       | 38.7      | 37.5            | 36.5      |
| 3004.....         | 45.7       | 41.4      | 39.7            | 39.1      |
| 8052.....         | 48.3       | 43.4      | 41.7            | 39.9      |
| 2024-O, -OAL..... | 51.2       | 42.5      | 41.0            | 41.2      |
| 7075-O, -OAL..... | 62.6       | 50.8      | 48.5            | 48.6      |

### Magnesium

(F.o.b. mill, freight allowed)

Sheet & Plate: FS1-O 1/4 in., 61¢; 3/16 in., 62¢; 1/8 in., 61¢; 0.064 in., 78¢; 0.062 in., 99¢. Specification grade higher. Base, 30,000 lb.

Extruded Round Rod: FS, diam 1/4 to 0.311 in., 32.5¢; 1/2 to 1 in., 65¢; 1 1/4 to 1.749 in., 60.5¢; 2 1/2 to 3 in., 57¢. Other alloys higher. Base up to 1/4 diam, 10,000 lb; 1/2 to 2 in., 20,000 lb; 2 in. and larger, 30,000 lb.

Extruded Solid Shapes: Rectangles: FS. In weight per ft for perimeter less than size indicated: 0.10 to 0.11 lb, 3.5 in., 70.7¢; 0.23 to 0.25 lb, 5.9 in., 66.9¢; 0.50 to 0.59 lb, 8.6 in., 63¢; 1.8 to 2.59 lb, 19.5 in., 60.5¢; 4 to 6 lb, 28 in., 57.7¢. Other alloys higher. Base, in weight per ft of shape: Up to 1/4 lb, 10,000 lb; 1/2 to 1.90 lb, 20,000 lb; 1.90 lb and heavier, 30,000 lb.

Extruded Round Tubing: FS, 0.049 to 0.057 in. wall thickness: OD 1/4 to 5/16 in., \$14.00-\$14.50; alloy \$16.50; Plate, HR, commercially pure, \$11.50-\$12.00; alloy, \$12.50-\$12.75; Wire, rolled and/or drawn, commercially pure, \$10.50-\$11.00; alloy, \$12.50; Bar, HR or forged, commercially pure, \$8.50-\$8.75; alloy, \$9.50-\$9.90.

### Titanium

(10,000 lb base, f.o.b. mill)

Sheet and strip, commercially pure, \$14.00-\$14.50; alloy \$16.50; Plate, HR, commercially pure, \$11.50-\$12.00; alloy, \$12.50-\$12.75; Wire, rolled and/or drawn, commercially pure, \$10.50-\$11.00; alloy, \$12.50; Bar, HR or forged, commercially pure, \$8.50-\$8.75; alloy, \$9.50-\$9.90.

### Nickel, Monel, Inconel

(Base prices, f.o.b. mill)

"A" Nickel Monel

|  | Sheet, CR     | 102 | 78  | 99  |
|--|---------------|-----|-----|-----|
|  | Strip, CR     | 102 | 87  | 125 |
|  | Rod, Bar, HR  | 87  | 69  | 93  |
|  | Angles, HR    | 87  | 69  | 93  |
|  | Plate, HR     | 97  | 82  | 95  |
|  | Seamless Tube | 122 | 108 | 159 |
|  | Shot, Blocks  | 85  | ... | ... |

### Copper, Brass, Bronze

(Freight included on 500 lb)

|   | Sheet | Rods  | Extruded Shapes |
|---|-------|-------|-----------------|
| Copper.....   | 56.79 | ...   | 58.56           |
| Copper, h-r.....                                    | 58.76 | 55.11 | ...             |
| Copper, drawn.....                                  | ...   | 56.36 | ...             |
| Low brass.....                                      | 53.15 | 53.09 | ...             |
| Yellow brass.....                                   | 49.27 | 49.21 | ...             |
| Red brass.....                                      | 54.54 | 54.48 | ...             |
| Naval brass.....                                    | 52.83 | 47.14 | 48.40           |
| Lead brass.....                                     | ...   | ...   | 45.74           |
| Com. bronze.....                                    | 56.48 | 56.42 | ...             |
| Mang. bronze.....                                   | 56.57 | 50.67 | 52.23           |
| Phos. bronze.....                                   | 77.14 | 77.64 | ...             |
| Muntz metal.....                                    | 50.94 | 46.75 | 48.00           |
| NI silver, 10 pct.....                              | 63.05 | 66.13 | 83.50           |
| Beryllium copper, CR, 1.9% Be, Base 2000 lb, f.o.b. | ...   | ...   | ...             |
| Strip.....  | ...   | ...   | \$1.84          |
| Rod, bar, wire.....                                 | ...   | ...   | 1.81            |

## PRIMARY METAL

(Cents per lb, unless otherwise noted)

|   |                  |
|---|------------------|
| Aluminum ingot, 99+%, 10,000 lb, freight allowed.....             | 24.40            |
| Aluminum pig.....   | 22.50            |
| Antimony, American, Laredo, Tex.....                              | 35.50            |
| Beryllium copper, per lb cont'd Be.....                           | \$40.00          |
| Beryllium aluminum 5% Be, Dollars.....                            | \$72.75          |
| Bismuth, ton lots.....  | \$2.25           |
| Cadmium, del'd.....   | \$1.70           |
| Cobalt, 97-99% (per lb).....                                      | \$2.60 to \$2.67 |
| Copper, electro, Conn. Valley.....                                | 43.00            |
| Copper, Lake, delivered.....                                      | 40.00            |
| Gold, U. S. Treas., per troy oz.....                              | \$35.00          |
| Indium, 99.9%, dollars per troy oz.....                           | \$2.25           |
| Iridium, dollars per troy oz.....                                 | \$90 to \$100    |
| Lead, St. Louis.....  | 14.50            |
| Lead, New York.....   | 16.00            |
| Magnesium, 99.8+%, f.o.b. Freeport, Tex., 10,000 lb, pig.....     | 32.50            |
| Ingot.....  | 33.25            |
| Magnesium, sticks, 100 to 500 lb.....                             | 53.00            |
| Mercury, dollars per 76-lb flask, f.o.b. New York.....            | \$254 to \$256   |
| Nickel electro.....   | 64.50            |
| Nickel oxide sinter, at Copper Cliff, Ont., contained nickel..... | 60.75            |
| Palladium, dollars per troy oz.....                               | \$22 to \$24     |
| Platinum, dollars per troy oz.....                                | \$80 to \$87     |
| Silver, New York, cents per troy oz.....                          | 90.75            |
| Tin, New York.....  | 95.875           |
| Titanium, sponge, grade A-1.....                                  | \$3.95           |
| Zinc, East St. Louis.....   | 12.50            |
| Zinc, New York.....   | 13.00            |
| Zirconium, sponge.....  | \$10.00          |

## REMELTED METALS

### Brass Ingot

(Cents per lb delivered, carloads)

|                  |       |
|------------------|-------|
| 85-5-5-5 Ingot   | 42.50 |
| No. 115.....     | 42.00 |
| No. 120.....     | 41.50 |
| No. 123.....     | 41.50 |
| 80-10-10 Ingot   | 45.75 |
| No. 305.....     | 44.00 |
| No. 315.....     | 44.00 |
| 88-10-2 Ingot    | 59.25 |
| No. 210.....     | 55.25 |
| No. 215.....     | 55.25 |
| No. 245.....     | 48.75 |
| Yellow Ingot     | 34.75 |
| No. 405.....     | 34.75 |
| Manganese bronze | 38.25 |
| No. 421.....     | 38.25 |

### Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

|                                   |             |
|-----------------------------------|-------------|
| 95-5 aluminum-silicon alloys      | 31.25-32.50 |
| 0.30 copper max.....              | 31.00-32.25 |
| 0.60 copper max.....              | 31.00-32.00 |
| Piston alloys (No. 123 type)..... | 31.00-32.00 |
| No. 12 alum. (No. 3 grade).....   | 30.00-30.75 |
| 108 alloy.....                    | 30.00-30.50 |
| 195 alloy.....                    | 31.25-32.25 |
| 13 alloy (0.60 copper max.).....  | 31.50-32.25 |
| AXS-679.....                      | 30.00-30.50 |

### Steel deoxidizing aluminum, notch bar granulated or shot

|                         |             |
|-------------------------|-------------|
| Grade 1-95-97 1/2%..... | 30.50-31.50 |
| Grade 2-92-95%.....     | 29.50-30.50 |
| Grade 3-90-92%.....     | 28.50-29.50 |
| Grade 4-85-90%.....     | 28.00-28.50 |

## ELECTROPLATING SUPPLIES

### Anodes

(Cents per lb, freight allowed, 5000 lb lots)

|  |       |
|--|-------|
| Copper   | 50.92 |
| Cast, oval, 15 in. or longer.....  | 45.25 |
| Electrodeposited.....  | 45.25 |
| Brass, 80-20   | 55.00 |
| Cast, oval, 15 in. or longer.....  | 50.25 |
| Zinc, flat cast.....   | 19.00 |
| Ball, anodes.....  | 19.00 |
| Nickel, 99 pct plus  | 98.50 |
| Cast.....  | 91.70 |
| Cadmium.....   | 91.70 |
| Silver 999 fine, rolled, 100 oz. lots per troy oz., f.o.b. Bridgeport, Conn..... | 94%   |

### Chemicals

|  |       |
|--|-------|
| (Cents per lb, f.o.b. shipping points)                           |       |
| Copper cyanide, 100 lb drum.....                                 | 76.00 |
| Copper sulphate, 99.5 crystals, bbl.....                         | 13.75 |
| Nickel salts, single or double, 4-100 lb bags, frt. allowed..... | 31.25 |
| Nickel chloride, 300 to 400 lb.....                              | 43.50 |
| Silver cyanide, 100 oz. lots, par oz.....                        | 81%   |
| Sodium cyanide, 96 pct domestic 200 lb drums.....                | 19.80 |
| Zinc cyanide, 100 lb drum.....                                   | 54.30 |

## SCRAP METALS

### Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

|                            | Heavy  | Turnings |
|----------------------------|--------|----------|
| Copper.....                | 38     | 37 1/2   |
| Yellow brass.....          | 28 1/2 | 26       |
| Red brass.....             | 33 1/2 | 32 1/2   |
| Comm. bronze.....          | 34 1/2 | 34       |
| Mang. bronze.....          | 26 1/2 | 25 1/2   |
| Yellow brass rod ends..... | 37 1/2 | ...      |

### Custom Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

|                          |        |
|--------------------------|--------|
| No. 1 copper wire.....   | 41 1/2 |
| No. 2 copper wire.....   | 40     |
| Light copper.....        | 38     |
| *Refinery brass.....     | 27     |
| *Dry copper content..... | ...    |

### Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

|                           |        |
|---------------------------|--------|
| No. 1 copper wire.....    | 41 1/2 |
| No. 2 copper wire.....    | 40     |
| Light copper.....         | 38     |
| No. 1 composition.....    | 34 1/2 |
| No. 3 comp. turnings..... | 33 1/2 |
| Roller brass.....         | 26 1/2 |
| Brass pipe.....           | 26     |
| Radiators.....            | 27 1/2 |

### Aluminum

|                          |               |
|--------------------------|---------------|
| Mixed old cast.....      | 19 1/2-20 1/2 |
| Mixed new clips.....     | 20 1/2-21 1/2 |
| Mixed turnings, dry..... | 19 1/2-21     |

### Dealers' Scrap

(Dealers' buying price, f.o.b. New York in cents per pound)

### Copper and Brass

|                                  |               |
|----------------------------------|---------------|
| No. 1 heavy copper and wire..... | 35 1/2-36 1/2 |
| No. 2 heavy copper and wire..... | 34 1/2-36     |
| Light copper.....                | 32 1/2-33 1/2 |
| New type shell cuttings.....     | 33-33 1/2     |
| Auto radiators (unsweated).....  | 23-23 1/2     |
| No. 1 composition.....           | 28 1/2-29 1/2 |
| No. 1 composition turnings.....  | 27-28         |
| Unlined red car boxes.....       | 23-23 1/2     |
| Cocks and faucets.....           | 24-24 1/2     |
| Mixed heavy yellow brass.....    | 20-20 1/2     |
| Old rolled brass.....            | 22 1/2-23     |
| Brass pipe.....                  | 24 1/2-25     |
| New soft brass clippings.....    | 24-24 1/2     |
| No. 1 brass rod turnings.....    | 22 1/2-23     |

### Aluminum

|                                   |               |
|-----------------------------------|---------------|
| Alum. pistons and struts.....     | 16 1/2-17     |
| Aluminum crankcases.....          | 16-17 1/2     |
| 1100 (28) aluminum clippings..... | 19-19 1/2     |
| Old sheet and utensils.....       | 16 1/2-17     |
| Borings and turnings.....         | 10 1/2-11 1/2 |
| Misc. cast aluminum.....          | 16 1/2-17     |
| 2024 (24s) clippings.....         | 17 1/2-18     |

### Zinc

|                         |         |
|-------------------------|---------|
| New zinc clippings..... | 7 1/2-8 |
| Old zinc.....           | 5-6 1/2 |
| Zinc routings.....      | 3 1/2   |
| Old die cast scrap..... | 3 1/2   |

### Nickel and Monel

|                                     |           |
|-------------------------------------|-----------|
| Pure nickel clippings.....          | 85-90     |
| Clean nickel turnings.....          | 65-70     |
| Nickel anodes.....                  | 80        |
| Nickel rod ends.....                | 80        |
| New Monel clippings.....            | 38 1/2-42 |
| Clean Monel turnings.....           | 29 1/2    |
| Old sheet Monel.....                | 34 1/2    |
| Nickel silver clippings, mixed..... | 19        |
| Nickel silver turnings, mixed.....  | 15 1/2    |

### Lead

|                           |             |
|---------------------------|-------------|
| Soft scrap lead.....      | 11 1/2-12   |
| Battery plates (dry)..... | 6 1/2-6 3/4 |
| Batteries, acid free..... | 4 1/2       |

### Magnesium

|                        |           |
|------------------------|-----------|
| Segregated solids..... | 18 1/2-19 |
| Castings.....          | 17 1/2-18 |

### Miscellaneous

|                              |           |
|------------------------------|-----------|
| Block tin.....               | 77        |
| No. 1 pewter.....            | 64        |
| Auto babbitt.....            | 40-43     |
| Mixed common babbitt.....    | 14 1/2    |
| Solder joints.....           | 17 1/2-20 |
| Siphon tops.....             | 43        |
| Small foundry type.....      | 16        |
| Monotype.....                | 15        |
| Lino. and stereotype.....    | 14-14 1/2 |
| Electrotype.....             | 12-13 1/2 |
| Hand picked type shells..... | 10 1/2    |
| Lino. and stereo, dross..... | 8 1/2     |
| Electro dross.....           | 5         |

| IRON AGE                                  |  | Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply. |                        |                    |                        |                    |                   |                    |                    |                          |                        |                        |                  |                   |
|---|--|---|------------------------|--------------------|------------------------|--------------------|-------------------|--------------------|--------------------|--------------------------|------------------------|------------------------|------------------|-------------------|
| STEEL PRICES<br>(Effective Aug. 30, 1955) |  | BILLETS, BLOOMS, SLABS  |                        |                    | PIL-ING<br>Sheet Steel | SHAPES STRUCTURALS |                   |                    | STRIP              |                          |                        |                        |                  |                   |
|   |  | Carbon Re-rolling Net Ton   | Carbon Forging Net Ton | Alloy Net Ton      |                        | Carbon             | Hi Str. Low Alloy | Carbon Wide-Flange | Hot-rolled         | Cold-rolled              | Hi Str. H.R. Low Alloy | Hi Str. C.R. Low Alloy | Alloy Hot-rolled | Alloy Cold-rolled |
| EAST                                      | Bethlehem, Pa.                         |   |                        | \$96.00 B3         |                        | 4.65 B3            | 6.80 B3           | 4.65 B3            |                    |                          |                        |                        |                  |                   |
|   | Buffalo, N. Y.                         | \$66.50 B3  | \$64.50 R3, B3         | \$96.00 R3, B3     | 5.45 B3                | 4.65 B3            | 6.80 B3           | 4.65 B3            | 4.325 R3, B3       | 6.25 B3<br>6.25 R2, S10  | 6.425 B3               | 9.125 B3               |                  |                   |
|   | Claymont, Del.                         |   |                        |                    |                        |                    |                   |                    |                    |                          |                        |                        |                  |                   |
|   | Harrison, N. J.                        |   |                        |                    |                        |                    |                   |                    |                    |                          |                        |                        |                  | 13.45 C11         |
|   | Crescent, Pa.                          |   |                        |                    |                        |                    |                   |                    | 4.375 A2           | 6.30 A2                  | 6.425 A2               |                        |                  |                   |
|   | New Bedford, Mass.                     |   |                        |                    |                        |                    |                   |                    |                    | 6.70 B6                  |                        |                        |                  |                   |
|   | Johnstown, Pa.                         | \$66.50 B3  | \$64.50 B3             | \$96.00 B3         |                        | 4.65 B3            | 6.80 B3           |                    |                    |                          |                        |                        |                  |                   |
|   | Revere, Mass.                          |   |                        |                    |                        |                    |                   |                    |                    | 6.80 T8                  |                        |                        |                  | 13.80 T8          |
|   | New Haven, Conn.                       |   |                        |                    |                        |                    |                   |                    |                    | 6.70 D1<br>7.90 A3       |                        |                        |                  |                   |
|   | Phoenicia, Pa.                         |   |                        |                    |                        | 5.15 P2            |                   | 5.15 P2            |                    |                          |                        |                        |                  |                   |
|   | Sparrows Pt., Md.                      |   |                        |                    |                        |                    |                   |                    | 4.325 B3           | 6.25 B3                  | 6.425 B3               | 9.125 B3               |                  |                   |
|   | Bridgeport, Wallingford, Conn.         | \$73.50 N8  | \$69.50 N8             |                    |                        |                    |                   |                    | 4.625 N8           | 6.70 W1                  |                        |                        | 7.50 N8          |                   |
| Pawtucket, R. I. Worcester, Mass.         |  |   |                        |                    |                        |                    |                   |                    | 6.80 N7<br>7.10 A3 |                          |                        |                        | 13.80 A3<br>N7   |                   |
| MIDDLE WEST                               | Alton, Ill.                            |   |                        |                    |                        |                    |                   |                    | 4.50 L1            |                          |                        |                        |                  |                   |
|   | Ashland, Ky.                           |   |                        |                    |                        |                    |                   |                    | 4.325 A7           |                          |                        |                        |                  |                   |
|   | Canton-Massillon, Dorav, Ohio          |   | \$66.50 R3             | \$96.00 R3         |                        |                    |                   |                    |                    |                          |                        |                        |                  | 13.45 G4          |
|   | Chicago, Ill.                          | \$66.50 U1  | \$64.50 R3, U1, W8     | \$96.00 R3, U1, W8 | 5.45 U1                | 4.60 U1, W8        | 6.75 U1, Y1       | 4.60 U1            | 4.325 A1, N4, W8   | 6.35 A1, T8              |                        |                        | 7.20 W8          | 13.45 T8          |
|   | Cleveland, Ohio                        |   |                        |                    |                        |                    |                   |                    |                    | 6.25 A3, J3              |                        | 9.30 A5                |                  | 13.45 A5          |
|   | Detroit, Mich.                         |   |                        | \$96.00 R5         |                        |                    |                   |                    | 4.425 G3, M2       | 6.35 D1, D2, G3, M2, P11 | 6.525 G3               | 9.30 D2, G3            |                  |                   |
|   | Duluth, Minn.                          |   |                        |                    |                        |                    |                   |                    |                    |                          |                        |                        |                  |                   |
|   | Gary, Ind. Harbor, Indiana             | \$66.50 U1  | \$64.50 U1             | \$96.00 U1, Y1     | 5.45 J3                | 4.60 U1, J3        | 6.75 U1, J3       |                    | 4.325 J3, U1, Y1   | 6.35 J3<br>6.25 Y1       | 6.425 J3, U1, Y1       | 9.30 Y1                | 7.20 Y1, U1      |                   |
|   | Sterling, Ill.                         |   |                        |                    |                        |                    |                   |                    | 4.425 N4           |                          |                        |                        |                  |                   |
|   | Indianapolis, Ind.                     |   |                        |                    |                        |                    |                   |                    |                    | 6.40 C5                  |                        |                        |                  |                   |
|   | Newport, Ky.                           |   |                        |                    |                        |                    |                   |                    |                    |                          |                        |                        | 7.20 N5          |                   |
|   | Middletown, Ohio                       |   |                        |                    |                        |                    |                   |                    |                    | 6.45 A7                  |                        |                        |                  |                   |
| Niles, Warren, Ohio Sharon, Pa.           | \$66.50 C10                            | \$64.50 C10   | \$96.00 C10            |                    |                        |                    |                   | 4.325 S1, R3       | 6.25 S1, R3, T4    | 6.425 S1, R3             | 9.10 S1, R3            | 7.20 S1                | 13.45 S1         |                   |
| Pittsburgh, Pa. Midland, Pa. Butler, Pa.  | \$66.50 U1, J3                         | \$64.50 J3, U1, C11   | \$96.00 U1, C11        | 5.45 U1            | 4.60 U1, J3            | 6.75 U1, J3        | 4.60 U1           | 4.325 P6           | 6.25 S7, B4        |                          |                        | 7.20 S9                | 13.45 S9         |                   |
| Portsmouth, Ohio                          |  |   |                        |                    |                        |                    |                   | 4.325 P7           | 6.25 P7            |                          |                        |                        |                  |                   |
| Weirton, Wheeling, Follinsbee, W. Va.     |  |   |                        |                    | 4.60 W3                |                    |                   | 4.325 W3           | 6.25 F3, W3        | 6.425 W3                 | 9.10 W3                |                        |                  |                   |
| Youngstown, Ohio                          |  | \$64.50 C10   | \$96.00 Y1, C10        |                    | 4.60 Y1                | 6.75 Y1            |                   | 4.325 U1, Y1       | 6.25 Y1, C3        | 6.425 U1, Y1             | 9.30 Y1                | 7.20 U1, Y1            | 13.45 C5         |                   |
| WEST                                      | Fontana, Cal.                          | \$76.00 K1  | \$92.00 K1             | \$115.00 K1        |                        | 5.25 K1            | 7.40 K1           | 5.40 K1            | 5.975 K1           | 8.60 K1                  | 7.525 K1               |                        | 8.85 K1          |                   |
|   | Geneva, Utah                           |   | \$64.50 C7             |                    |                        | 4.60 C7            | 6.75 C7           |                    |                    |                          |                        |                        |                  |                   |
|   | Kansas City, Mo.                       |   |                        |                    |                        | 4.70 S2            | 6.85 S2           |                    |                    |                          | 6.675 S2               |                        | 7.45 S2          |                   |
|   | Los Angeles, Torrance, Cal.            |   | \$94.00 B2             | \$116.00 B2        |                        | 5.30 C7, B2        | 7.45 B2           |                    | 5.975 C7, B2       | 8.30 C7                  |                        |                        | 8.40 B2          |                   |
|   | Minnequin, Colo.                       |   |                        |                    |                        | 4.90 C6            |                   |                    | 5.425 C6           |                          |                        |                        |                  |                   |
|   | Portland, Ore.                         |   |                        |                    |                        | 5.35 O2            |                   |                    |                    |                          |                        |                        |                  |                   |
|   | San Francisco, Niles, Pittsburg, Cal.  |   | \$94.00 B2             |                    |                        | 5.25 B2<br>P9      | 7.40 B2           |                    | 5.975 B2, C7       |                          |                        |                        |                  |                   |
|   | Seattle, Wash.                         |   | \$98.00 B2             |                    |                        | 5.35 B2            | 7.50 B2           |                    | 5.325 B2           |                          |                        |                        |                  |                   |
|   | Atlanta, Ga.                           |   |                        |                    |                        |                    |                   |                    | 4.525 A8           |                          |                        |                        |                  |                   |
| SOUTH                                     | Fairfield, Ala. City, Birmingham, Ala. | \$66.50 T2  | \$64.50 T2             |                    |                        | 4.60 C16, R3, T2   | 6.75 T2           |                    | 4.325 R3, C16, T2  |                          | 6.425 T2               |                        |                  |                   |
|   | Houston, Lone Star, Tex.               | L3  | \$69.50 S2             | \$101.00 S2        |                        | 4.70 S2            | 6.85 S2           |                    |                    |                          | 6.675 S2               |                        | 7.45 S2          |                   |



| IRON AGE                                  |                                       | Notes identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply. |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|---|---------------------------------------|---|--------------------|-------------------|------------------|------------------|------------------------|------------------------|-------------------------|-------------------|---------------|---|----------------------------|-----------------------------|
| STEEL PRICES<br>(Effective Aug. 30, 1955) |                                       | SHEETS  |                    |                   |                  |                  |                        |                        |                         |                   | WIRE ROD      | TINPLATE†   |                            | BLACK PLATE                 |
|   |                                       | Hot-rolled 18 ga. & heavier   | Cold-rolled        | Galvanized 18 ga. | Enameling 12 ga. | Long Tens 10 ga. | Hi Str. Low Alloy H.R. | Hi Str. Low Alloy C.R. | Hi Str. Low Alloy Calv. | Hot-rolled 19 ga. |               | Coke* 1.25-lb. beam box   | Electro* 0.25-lb. beam box | Hollowware Enameling 20 ga. |
| EAST                                      | Bethlehem, Pa.                        |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Buffalo, N. Y.                        | 4.325 B3  | 5.325 B3           |                   |                  |                  | 6.375 B3               | 7.875 B3               |                         |                   | W6            | † Special coated mfg. terms deduct 95¢ from 1.25-lb. coke beam box price. Co-mingling quality blackplate 50 to 125 lb. deduct \$2.20 from 1.25-lb. coke beam box.<br>* COKE: 1.50-lb. add 25¢.<br>ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add \$1.10. Differential 1.00 lb./0.25 lb. add 65¢. |                            |                             |
|   | Claymont, Del.                        |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Coatsville, Pa.                       |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Conshohocken, Pa.                     | 4.375 A2  | 5.375 A2           |                   |                  |                  | 6.425 A2               |                        |                         |                   |               |   |                            |                             |
|   | Harrisburg, Pa.                       |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Hartford, Conn.                       |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Johnstown, Pa.                        |   |                    |                   |                  |                  |                        |                        |                         | 5.825 B3          |               |   |                            |                             |
|   | Fairless, Pa.                         | 4.375 U1  | 5.375 U1           |                   |                  |                  | 6.425 U1               | 7.925 U1               |                         |                   |               | \$8.00 U1   | \$7.00 U1                  |                             |
|   | New Haven, Conn.                      |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
| Phoenixville, Pa.                         |                                       |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
| Sparrows Pt., Md.                         | 4.325 B3                              | 5.325 B3  | 5.85 B3            |                   |                  | 6.375 B3         | 7.875 B3               | 8.00 B3                |                         | 5.125 B3          | \$8.00 B3     | \$7.00 B3   |                            |                             |
| Worcester, Mass.                          |                                       |   |                    |                   |                  |                  |                        |                        |                         | 5.325 A5          |               |   |                            |                             |
| Tranton, N. J.                            |                                       |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
| MIDDLE WEST                               | Alton, Ill.                           |   |                    |                   |                  |                  |                        |                        |                         | 5.30 L1           |               |   |                            |                             |
|   | Ashland, Ky.                          | 4.325 A7  |                    | 5.85 A7           | 5.90 A7          |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Centon-Macmillan, Dover, Ohio         |   |                    | 5.85 R1, R3       |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Chicago, Joliet, Ill.                 | 4.325 A1, W8  |                    |                   |                  |                  | 6.375 U1               |                        |                         | 5.905 A5, N4, R3  |               |   |                            |                             |
|   | Sterling, Ill.                        |   |                    |                   |                  |                  |                        |                        |                         | 5.125 N4          |               |   |                            |                             |
|   | Cleveland, Ohio                       | 4.325 J3, R3  | 5.325 J3, R3       |                   | 5.90 R3          |                  | 6.375 J3, R3           | 7.875 J3, R3           |                         |                   | 5.905 A5      |   |                            |                             |
|   | Detroit, Mich.                        | 4.425 G3, M2  | 5.425 G3, 5.325 M2 |                   |                  |                  | 6.475 G3               | 7.975 G3               |                         |                   |               |   |                            |                             |
|   | Newport, Ky.                          | 4.325 N5  | 5.325 N5           | 5.85 N3           |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Gary, Ind. Harbor, Indiana            | 4.325 J3, U1, Y1  | 5.325 J3, U1, Y1   | 5.85 U1, J3       | 5.90 U1, J3      | 6.25 U1          | 6.375 Y1, U1, J3       | 7.875 U1, Y1           |                         |                   | 5.925 Y1      | \$8.00 J3, U1, Y1   | \$7.50 J3, U1, Y1          | 6.65 U1, Y1                 |
|   | Granite City, Ill.                    | 4.525 G2  | 5.525 G2           | 6.05 G2           | 6.10 G2          |                  |                        |                        |                         |                   |               |   | \$7.00 G2                  | 6.75 G2                     |
| Kokomo, Ind.                              | 4.425 C9                              |   | 5.95 C9            |                   |                  |                  |                        |                        | 5.475 C9                | 5.125 C9          |               |   |                            |                             |
| Mansfield, Ohio                           | 4.325 E2                              | 5.325 E2  |                    |                   | 6.25 E2          |                  |                        |                        | E2                      |                   |               |   |                            |                             |
| Midlandtown, Ohio                         |                                       | 5.325 A7  | 5.85 A7            | 5.90 A7           | 6.25 A7          |                  |                        |                        |                         |                   |               |   |                            |                             |
| Niles, Warren, Ohio Sharon, Pa.           | 4.325 S1, R3 N3                       | 5.325 R3 N3   | 5.85 N3, R3        | 5.90 N3           | 6.25 N3          | 6.375 S1, R3     | 7.875 R3               |                        |                         |                   | \$8.00 R3     | \$7.50 R3   |                            |                             |
| Pittsburgh, Pa. Midland, Pa. Butler, Pa.  | 4.325 J3, U1, P6                      | 5.325 J3, U1, P6  | 5.85 U1            | 5.90 U1, A7       |                  | 6.375 J3, U1     | 7.875 U1               | 8.00 U1                |                         | 5.925 A5 P6       | \$8.00 J3, U1 | \$7.50 J3, U1   | 6.65 U1                    |                             |
| Portsmouth, Ohio                          | 4.325 P7                              | 5.325 P7  |                    |                   |                  |                  |                        |                        |                         | 5.925 P7          |               |   |                            |                             |
| Weirton, Wheeling, Follansbee, W. Va.     | 4.325 W3, W5                          | 5.325 W3, W5, F3  | 5.85 W3, W5        |                   | 6.25 W3, W5      | 6.375 W3         | 7.875 W3               |                        |                         |                   | \$8.00 W3, W5 | \$7.50 W3, W5   | 6.65 F3, W5                |                             |
| Youngstown, Ohio                          | 4.325 U1, Y1                          | 5.325 Y1  |                    | 5.90 Y1           |                  | 6.375 U1, Y1     | 7.875 Y1               |                        |                         | 5.925 Y1          |               |   |                            |                             |
| WEST                                      | Fontana, Cal.                         | 5.975 K1  | 6.425 K1           |                   |                  |                  | 7.125 K1               | 8.975 K1               |                         |                   |               |   |                            |                             |
|   | Geneva, Utah                          | 4.425 C7  |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Kansas City, Mo.                      |   |                    |                   |                  |                  |                        |                        |                         | 5.275 S2          |               |   |                            |                             |
|   | Los Angeles, Torrance, Cal.           |   |                    |                   |                  |                  |                        |                        |                         | 5.825 B3          |               |   |                            |                             |
|   | Minnequa, Colo.                       |   |                    |                   |                  |                  |                        |                        |                         | 5.275 C6          |               |   |                            |                             |
|   | San Francisco, Niles, Pittsburg, Cal. | 5.925 C7  | 6.275 C7           | 6.90 C7           |                  |                  |                        |                        |                         | 5.975 C7          | \$8.55 C7     | \$8.25 C7   |                            |                             |
|   | Seattle, Wash.                        |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
| SOUTH                                     | Atlanta, Ga.                          |   |                    |                   |                  |                  |                        |                        |                         |                   |               |   |                            |                             |
|   | Fairfield, Ala. Alabama City, Ala.    | 4.325 R3, T2  | 5.325 T2           | 5.85 R3, T2       |                  |                  | 6.375 T2               |                        |                         | 5.925 R3          | 5.975 R3, T2  | \$8.90 T2   | \$7.90 T2                  |                             |
|   | Houston, Tex.                         |   |                    |                   |                  |                  |                        |                        |                         | 5.275 S2          |               |   |                            |                             |

STEEL  
PRICES(Effective  
Aug. 30, 1955)

|             | BARS  |                        |                       |                                  |                      |                               | PLATES               |                |          |                   | WIRE              |
|-------------|---|------------------------|-----------------------|----------------------------------|----------------------|-------------------------------|----------------------|----------------|----------|-------------------|-------------------|
|             | Carbon Steel                                  | Reinforcing            | Cold Finished         | Alloy Hot-rolled                 | Alloy Cold Drawn     | Hi Str. H.R. Low Alloy        | Carbon Steel         | Flame Plate    | Alloy    | Hi Str. Low Alloy |                   |
| EAST        | Bechtel, Pa.                                  |                        |                       | 5.575 B3                         | 7.425 B3             | 6.90 B3                       |                      |                |          |                   |                   |
|             | Buffalo, N. Y.                                | 4.85 B3,R3             | 4.65 B3,R3            | 5.95 B5                          | 5.575 B3,R3          | 7.425 B3,B5                   | 6.90 B3              | 4.50 B3,R3     |          |                   | 6.25 W6           |
|             | Claymont, Del.                                |                        |                       |                                  |                      |                               |                      | 4.50 C4        | 6.30 C4  |                   |                   |
|             | Conneville, Pa.                               |                        |                       |                                  |                      |                               |                      | 4.50 L4        | 6.30 L4  | 6.725 L4          |                   |
|             | Conshohocken, Pa.                             |                        |                       |                                  |                      |                               |                      | 4.50 A2        | 5.575 A2 | 6.725 A2          |                   |
|             | Harrisburg, Pa.                               |                        |                       |                                  |                      |                               |                      | 5.10 C3        | 5.575 C3 |                   |                   |
|             | Hartford, Conn.                               |                        |                       | 6.40 R3                          |                      | 7.725 R3                      |                      |                |          |                   |                   |
|             | Johnstown, Pa.                                | 4.85 B3                | 4.65 B3               |                                  | 5.575 B3             |                               | 6.90 B3              | 4.50 B3        |          | 6.30 B3           | 6.725 B3          |
|             | Fairless, Pa.                                 | 4.80 U1                | 4.80 U1               |                                  | 5.725 U1             |                               |                      |                |          |                   | 6.25 B3           |
|             | Newark, N. J.                                 |                        |                       | 6.35 W10                         |                      | 7.60 W10                      |                      |                |          |                   |                   |
|             | Camden, N. J.                                 |                        |                       | 6.35 P10                         |                      |                               |                      |                |          |                   |                   |
| MIDDLE WEST | Bridgeport, Putnam, Conn.                     | 4.80 N8                |                       | 6.45 W10                         | 5.725 N8             |                               |                      | 4.750 N8       |          |                   |                   |
|             | Sparrows Pt., Md.                             |                        | 4.65 B3               |                                  |                      |                               |                      | 4.50 B3        | 6.30 B3  | 6.725 B3          | 6.35 B3           |
|             | Palmer, Worcester, Randolph, Mansfield, Mass. |                        |                       | 6.35 W11<br>6.45 B3,C14          |                      | 7.725 A5,B3                   | 4.50 R3              |                |          |                   | 6.35 A5, W6       |
|             | Alton, Ill.                                   | 4.85 L1                |                       |                                  |                      |                               |                      |                |          |                   | 6.425 L1          |
|             | Ashland, Newport, Ky.                         |                        |                       |                                  |                      |                               |                      | 4.50 A7,N5     | 6.30 N5  |                   |                   |
|             | Centon-Mason, Mansfield, Ohio                 | 4.75 R3                |                       | 5.90 R2,R3                       | 5.575 R3,T3          | 7.425 R2,R3, T3               | 4.50 E2              |                |          |                   |                   |
|             | Chicago, Joliet, Ill.                         | 4.65 U1, N4,W8,R3, P13 | 4.65 N4,R3, P13       | 5.90 A5,W10, W8,B5,L2            | 5.575 U1,R3, W8      | 7.425 A5,W8, W10,L2,B8        | 4.50 U1,W8, T3,A1,R3 | 5.575 U1       | 6.30 U1  | 6.725 U1          | 6.25 A5, R3,N4,W7 |
|             | Cleveland, Ohio                               | 4.85 R3                | 4.65 R3               | 5.90 A5,C13                      |                      | 7.425 A5,C13                  | 6.90 R3              | 4.60 J3, R3    | 5.575 J3 | 6.725 R3, J3      | 6.25 A5, C13      |
|             | Detroit, Mich.                                | 4.75 G3                | 4.75 G3               | 5.90 R5<br>6.10 B5,P8<br>6.15 P5 | 5.575 R5<br>5.475 G3 | 7.425 R5<br>7.425 B5,P3<br>P8 | 6.90 G3              | 4.60 G3        |          | 6.825 G3          |                   |
|             | Duluth, Minn.                                 |                        |                       |                                  |                      |                               |                      |                |          |                   | 6.25 A5           |
|             | Gary, Ind. Harbor, Cuyahoga, Ohio             | 4.65 J3, U1, Y1        | 4.65 J3, U1, Y1       | 5.90 M5,R3                       | 5.575 J3, U1, Y1     | 7.425 M5, R3                  | 6.90 U1,J3, Y1       | 4.50 J3, U1,Y1 | 5.575 J3 | 6.30 U1,Y1        | 6.725 U1,J3, Y1   |
| WEST        | Granite City, Ill.                            |                        |                       |                                  |                      |                               |                      | 4.70 G2        |          |                   |                   |
|             | Kokomo, Ind.                                  |                        |                       |                                  |                      |                               |                      |                |          |                   | 6.35 C9           |
|             | Stirling, Ill.                                | 4.75 N4                | 4.75 N4               |                                  |                      |                               |                      |                |          |                   | 6.35 N4           |
|             | Niles, Warren, Ohio Sharon, Pa.               | 4.65 R3,C10            |                       | 5.90 C10                         | 5.575 C10            | 7.425 C10                     | 6.90 R3              | 4.50 S1,R3     | 6.30 S1  | 6.725 S1          |                   |
|             | Pittsburgh, Pa. Midland, Pa.                  | 4.65 J3, U1, C11       | 4.65 J3, U1           | 5.90 A5,C8, C11,J3, W10,B4,R3    | 5.575 U1,C11         | 7.425 A5,C11, W10,C8,R3       | 6.90 J3, U1          | 4.50 J3, U1    | 5.575 U1 | 6.30 U1           | 6.725 J3, U1      |
|             | Portsmouth, Ohio                              |                        |                       |                                  |                      |                               |                      |                |          |                   | 6.25 P7           |
|             | Worren, Wheeling, Parkersburg, W. Va.         | 4.65 W3                |                       |                                  |                      |                               |                      | 4.50 W3,W3     |          |                   |                   |
|             | Youngstown, Ohio                              | 4.65 U1,Y1, C10,R3     | 4.65 U1,Y1, R3        | 5.90 Y1, U1                      | 5.575 U1,Y1, C10     | 7.425 Y1,C10 7.465 P2         | 6.90 U1,Y1           | 4.50 U1,Y1, R3 | 6.30 Y1  | 6.725 Y1          | 6.25 Y1           |
|             | Emeryville, Cal.                              | 5.40 J5                | 5.40 J5               |                                  |                      |                               |                      |                |          |                   |                   |
|             | Fantone, Cal.                                 | 5.35 K1                | 5.35 K1               |                                  | 6.625 K1             |                               | 7.50 K1              | 5.15 K1        | 6.95 K1  | 7.375 K1          |                   |
|             | Genova, Utah                                  |                        |                       |                                  |                      |                               |                      | 4.50 C7        |          | 6.725 C7          |                   |
| SOUTH       | Kansas City, Mo.                              | 4.90 S2                | 4.90 S2               |                                  | 5.535 S2             |                               | 7.65 S2              |                |          |                   | 6.50 S2           |
|             | Los Angeles, Torrance, Cal.                   | 5.35 B2,C7             | 5.35 B2,C7            | 7.35 R3                          | 6.625 B2             |                               | 7.50 B2              |                |          | 7.425 B2          | 7.20 B2           |
|             | Minneapolis, Colo.                            | 5.10 C6                | 5.10 C6               |                                  |                      |                               |                      | 5.35 C6        |          |                   | 6.90 C6           |
|             | Portland, Ore.                                | 5.40 O2                | 5.40 O2               |                                  |                      |                               |                      |                |          |                   |                   |
|             | San Francisco, Niles, Pittsburg, Cal.         | 5.35 C7<br>5.40 B2,P9  | 5.35 C7<br>5.40 B2,P9 |                                  |                      |                               | 7.35 B2              |                |          |                   | 7.20 C7           |
|             | Seattle, Wash.                                | 5.40 B2,P12, N6        | 5.40 B2,P12           |                                  |                      |                               | 7.55 B2              | 5.40 B2        | 7.20 B2  | 7.425 B2          |                   |
|             | Atlanta, Ga.                                  | 4.85 A8                | 4.85 A8               |                                  |                      |                               |                      |                |          |                   | 6.45 A8           |
|             | Fairfield, Ala. City, Birmingham, Ala.        | 4.65 T2,C16, R3        | 4.65 T2,C16, R3       |                                  |                      |                               | 6.90 T2              | 4.50 T2,R3     |          | 6.725 T2          | 6.25 R3, T2       |
|             | Houston, Ft. Worth, Lone Star, Tex.           | 4.90 S2                | 4.90 S2               |                                  | 5.825 S2             |                               | 7.95 S2              | 4.90 L3, S2    | 6.40 S2  | 6.825 S2          | 6.50 S2           |

## Key to Steel Producers

### With Principal Offices

- A1 Arco Steel Co., Chicago  
A2 Alan Wood Steel Co., Combokhocken, Pa.  
A3 Allegheny Ludlum Steel Corp., Pittsburgh  
A4 American Castmetals Co., Carnegie, Pa.  
A5 American Steel & Wire Div., Cleveland  
A6 Angell Nail & Chaplet Co., Cleveland  
A7 Araco Steel Corp., Middletown, O.  
A8 Atlantic Steel Co., Atlanta, Ga.  
B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.  
B2 Bethlehem Pacific Coast Steel Corp., San Francisco  
B3 Bethlehem Steel Co., Bethlehem, Pa.  
B4 Blair Strip Steel Co., New Castle, Pa.  
B5 Bliss & Laughlin, Inc., Harvey, Ill.  
B6 Brook Plant, Wickwire Spencer Steel Div., Birdsboro, Pa.  
C1 Calstrip Steel Corp., Los Angeles  
C2 Carpenter Steel Co., Reading, Pa.  
C3 Central Iron & Steel Co., Harrisburg, Pa.  
C4 Claymont Products Dept., Claymont, Del.  
C5 Cold Metal Products Co., Youngstown, O.  
C6 Colorado Fuel & Iron Corp., Denver  
C7 Columbia Geneva Steel Div., San Francisco  
C8 Columbia Steel & Shifting Co., Pittsburgh  
C9 Continental Steel Corp., Kokomo, Ind.  
C10 Copperweld Steel Co., Pittsburgh, Pa.  
C11 Crucible Steel Co. of America, Pittsburgh  
C12 Cumberland Steel Co., Cumberland, Md.  
C13 Cuyahoga Steel & Wire Co., Cleveland  
C14 Compressed Steel Shifting Co., Roadville, Mass.  
C15 G. O. Carlson, Inc., Thorndale, Pa.  
C16 Connors Steel Div., Birmingham  
C17 Chester Blast Furnace Inc., Chester, Pa.  
D1 Detroit Steel Corp., Detroit  
D2 Detroit Tube & Steel Div., Detroit  
D3 Driver Harris Co., Harrison, N. J.  
D4 Dickson Weatherproof Nail Co., Evanston, Ill.  
D5 Henry Dismont & Sons, Inc., Philadelphia  
E1 Eastern Stainless Steel Corp., Baltimore  
E2 Empire Steel Co., Mansfield, O.  
F1 Firth Sterling, Inc., McKeesport, Pa.  
F2 Fitzsimmons Steel Corp., Youngstown  
F3 Follenbee Steel Corp., Follenbee, W. Va.  
G1 Globe Iron Co., Jackson, O.

- G2 Granite City Steel Co., Granite City, Ill.  
G3 Great Lakes Steel Corp., Detroit  
G4 Greer Steel Co., Dover, O.  
H1 Hanna Furnace Corp., Detroit  
I1 Ingersoll Steel Div., Chicago  
I2 Inland Steel Co., Chicago  
I4 Interlake Iron Corp., Cleveland  
J1 Jackson Iron & Steel Co., Jackson, O.  
J2 Jessup Steel Corp., Washington, Pa.  
J3 Jones & Laughlin Steel Corp., Pittsburgh  
J4 Joslyn Mfg. & Supply Co., Chicago  
J5 Judson Steel Corp., Emoryville, Calif.  
K1 Kaiser Steel Corp., Fontana, Cal.  
K2 Keystone Steel & Wire Co., Peoria  
K3 Koppers Co., Granite City, Ill.  
L1 Laclede Steel Co., St. Louis  
L2 La Salle Steel Co., Chicago  
L3 Lone Star Steel Co., Dallas  
L4 Lukens Steel Co., Coatesville, Pa.  
M1 Mahoning Valley Steel Co., Niles, O.  
M2 McLouth Steel Corp., Detroit  
M3 Mercer Tube & Mfg. Co., Sharon, Pa.  
M4 Mid-States Steel & Wire Co., Crawfordsville, Ind.  
M5 Monarch Steel Div., Hammond, Ind.  
M6 Mystic Iron Works, Everett, Mass.  
N1 National Supply Co., Pittsburgh  
N2 National Tube Div., Pittsburgh  
N3 Niles Rolling Mill Div., Niles, O.  
N4 Northwestern Steel & Wire Co., Sterling, Ill.  
N5 Newport Steel Corp., Newport, Ky.  
N6 Northwest Steel Rolling Mills, Seattle  
N7 Newman Crosby Steel Co., Pawtucket, R. I.  
N8 Northeastern Steel Corp., Bridgeport, Conn.  
O1 Oliver Iron & Steel Co., Pittsburgh  
O2 Oregon Steel Mills, Portland  
P1 Page Steel & Wire Div., Monessen, Pa.  
P2 Phoenix Iron & Steel Co., Phoenixville, Pa.  
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.  
P4 Pittsburgh Coke & Chemical Co., Pittsburgh  
P5 Pittsburgh Screw & Bolt Co., Pittsburgh  
P6 Pittsburgh Steel Co., Pittsburgh  
P7 Portsmouth Div., Detroit Steel Corp., Detroit  
P8 Plymouth Steel Co., Detroit  
P9 Pacific States Steel Co., Niles, Cal.  
P10 Precision Drawn Steel Co., Camden, N. J.  
P11 Production Steel Strip Corp., Detroit  
P12 Pacific Steel Rolling Mills, Seattle  
P13 Phoenix Mfg. Co., Joliet, Ill.  
R1 Reeves Steel & Mfg. Co., Dover, O.  
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.  
R3 Republic Steel Corp., Cleveland  
R4 Roebbing Sons Co., John A., Trenton, N. J.  
R5 Rotary Electric Steel Co., Detroit  
R6 Rodney Metals, Inc., New Bedford, Mass.  
R7 Rome Strip Steel Co., Rome, N. Y.  
S1 Sharon Steel Corp., Sharon, Pa.  
S2 Sheffield Steel Corp., Kansas City  
S3 Shenango Furnace Co., Pittsburgh  
S4 Simonds Saw & Steel Co., Fitchburg, Mass.  
S5 Swart's Steel Co., Williamsport, Pa.  
S6 Standard Forging Corp., Chicago  
S7 Stanley Works, New Britain, Conn.  
S8 Superior Drawn Steel Co., Monaca, Pa.  
S9 Superior Steel Corp., Carnegie, Pa.  
S10 Seneca Steel Service, Buffalo  
T1 Tonawanda Iron Div., N. Tonawanda, N. Y.  
T2 Tennessee Coal & Iron Div., Fairfield  
T3 Tennessee Products & Chem. Corp., Nashville  
T4 Thomas Strip Div., Warren, O.  
T5 Timken Steel & Tube Div., Canton, O.  
T6 Tremont Nail Co., Warehouse, Mass.  
T7 Texas Steel Co., Fort Worth  
T8 Thompson Wire Co., Boston  
U1 United States Steel Corp., Pittsburgh  
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.  
U3 Ulbrich Stainless Steels, Wallingford, Conn.  
U4 U. S. Pipe & Foundry Co., Birmingham  
W1 Wallingford Steel Co., Wallingford, Conn.  
W2 Washington Steel Corp., Washington, Pa.  
W3 Weirton Steel Co., Weirton, W. Va.  
W4 Wheatland Tube Co., Wheatland, Pa.  
W5 Wheeling Steel Corp., Wheeling, W. Va.  
W6 Wickwire Spencer Steel Div., Buffalo  
W7 Wilson Steel & Wire Co., Chicago  
W8 Wisconsin Steel Co., S. Chicago, Ill.  
W9 Woodward Iron Co., Woodward, Ala.  
W10 Wycoff Steel Co., Pittsburgh  
W11 Worcester Pressed Steel Co., Worcester, Mass.  
Y1 Youngstown Sheet & Tube Co., Youngstown

## PIPE AND TUBING

Basic discounts (per) l.b. mill. Basic price about \$200 per net ton.

|                             | BUTTWELD |       |         |       |       |       |           |       |           |       |       |       |           |       | SEAMLESS |       |           |       |       |       |           |       |       |      |
|-----------------------------|----------|-------|---------|-------|-------|-------|-----------|-------|-----------|-------|-------|-------|-----------|-------|----------|-------|-----------|-------|-------|-------|-----------|-------|-------|------|
|                             | 1/2 In.  |       | 3/4 In. |       | 1 In. |       | 1 1/4 In. |       | 1 1/2 In. |       | 2 In. |       | 2 1/2 In. |       | 3 In.    |       | 3 1/2 In. |       | 4 In. |       | 4 1/2 In. |       | 5 In. |      |
|                             | Blk.     | Gal.  | Blk.    | Gal.  | Blk.  | Gal.  | Blk.      | Gal.  | Blk.      | Gal.  | Blk.  | Gal.  | Blk.      | Gal.  | Blk.     | Gal.  | Blk.      | Gal.  | Blk.  | Gal.  | Blk.      | Gal.  | Blk.  | Gal. |
| <b>STANDARD T. &amp; C.</b> |          |       |         |       |       |       |           |       |           |       |       |       |           |       |          |       |           |       |       |       |           |       |       |      |
| Sparrows Pt. B3             | 15.50    | 0.25  | 18.50   | 4.25  | 21.00 | 7.75  | 23.50     | 8.50  | 24.00     | 9.50  | 24.50 | 10.00 | 25.00     | 9.75  |          |       |           |       |       |       |           |       |       |      |
| Youngstown R3               | 17.50    | 0.25  | 20.50   | 4.25  | 23.00 | 7.75  | 25.50     | 9.00  | 26.00     | 10.00 | 26.50 | 10.50 | 27.00     | 10.75 |          |       |           |       |       |       |           |       |       |      |
| Fontana K1                  | 6.00     | +0.25 | 9.00    | +0.25 | 11.50 | +1.75 | 14.00     | +1.00 | 14.50     | +0.00 | 15.00 | 0.50  | 16.50     | 0.25  |          |       |           |       |       |       |           |       |       |      |
| Pittsburgh J3               | 17.50    | 2.25  | 20.50   | 6.25  | 23.00 | 9.75  | 25.50     | 10.50 | 26.00     | 11.50 | 26.50 | 12.00 | 27.00     | 11.75 | 6.50     | +0.50 | 10.50     | +0.25 | 13.00 | +0.75 | 14.50     | +2.25 |       |      |
| Alton, Ill. L1              | 15.50    | 0.25  | 18.50   | 4.25  | 21.00 | 7.75  | 23.50     | 8.50  | 24.00     | 9.50  | 24.50 | 10.00 | 25.00     | 9.75  |          |       |           |       |       |       |           |       |       |      |
| Sharon M3                   | 17.50    | 2.25  | 20.50   | 6.25  | 23.00 | 9.75  | 25.50     | 10.50 | 26.00     | 11.50 | 26.50 | 12.00 | 27.00     | 11.75 |          |       |           |       |       |       |           |       |       |      |
| Fairless N2                 | 15.50    | 0.25  | 18.50   | 4.25  | 21.00 | 7.75  | 23.50     | 8.50  | 24.00     | 9.50  | 24.50 | 10.00 | 25.00     | 9.75  |          |       |           |       |       |       |           |       |       |      |
| Pittsburgh N1               | 17.50    | 2.25  | 20.50   | 6.25  | 23.00 | 9.75  | 25.50     | 10.50 | 26.00     | 11.50 | 26.50 | 12.00 | 27.00     | 11.75 | 6.50     | +0.50 | 10.50     | +0.25 | 13.00 | +0.75 | 14.50     | +2.25 |       |      |
| Wheeling W5                 | 17.50    | 2.25  | 20.50   | 6.25  | 23.00 | 9.75  | 25.50     | 10.50 | 26.00     | 11.50 | 26.50 | 12.00 | 27.00     | 11.75 |          |       |           |       |       |       |           |       |       |      |
| Wheatland W4                | 17.50    | 2.25  | 20.50   | 6.25  | 23.00 | 9.75  | 25.50     | 10.50 | 26.00     | 11.50 | 26.50 | 12.00 | 27.00     | 11.75 |          |       |           |       |       |       |           |       |       |      |
| Youngstown Y1               | 17.50    | 2.25  | 20.50   | 6.25  | 23.00 | 9.75  | 25.50     | 10.50 | 26.00     | 11.50 | 26.50 | 12.00 | 27.00     | 11.75 | 6.50     | +0.50 | 10.50     | +0.25 | 13.00 | +0.75 | 14.50     | +2.25 |       |      |
| Indiana Harbor Y1           | 16.50    | 1.25  | 19.50   | 5.25  | 22.00 | 8.75  | 24.50     | 9.50  | 25.00     | 10.50 | 25.50 | 11.00 | 27.00     | 10.75 |          |       |           |       |       |       |           |       |       |      |
| Lorain N2                   | 17.50    | 2.25  | 20.50   | 6.25  | 23.00 | 9.75  | 25.50     | 10.50 | 26.00     | 11.50 | 26.50 | 12.00 | 27.00     | 11.75 | 6.50     | +0.50 | 10.50     | +0.25 | 13.00 | +0.75 | 14.50     | +2.25 |       |      |
| <b>EXTRA STRONG</b>         |          |       |         |       |       |       |           |       |           |       |       |       |           |       |          |       |           |       |       |       |           |       |       |      |
| <b>PLAIN ENDS</b>           |          |       |         |       |       |       |           |       |           |       |       |       |           |       |          |       |           |       |       |       |           |       |       |      |
| Sparrows Pt. B3             | 20.0     | 6.25  | 24.00   | 10.25 | 28.00 | 13.75 | 28.50     | 12.50 | 27.00     | 13.50 | 27.50 | 14.00 | 28.00     | 12.75 |          |       |           |       |       |       |           |       |       |      |
| Youngstown R3               | 22.0     | 6.25  | 26.00   | 10.25 | 28.00 | 13.75 | 28.50     | 13.00 | 29.00     | 14.00 | 29.50 | 14.50 | 30.00     | 13.75 |          |       |           |       |       |       |           |       |       |      |
| Fairless N2                 | 20.0     | 6.25  | 24.00   | 10.25 | 28.00 | 13.75 | 28.50     | 12.50 | 27.00     | 13.50 | 27.50 | 14.00 | 28.00     | 12.75 |          |       |           |       |       |       |           |       |       |      |
| Fontana K1                  | 10.50    |       | 14.50   |       | 16.50 |       | 17.00     |       | 17.50     |       | 18.00 |       | 18.50     |       |          |       |           |       |       |       |           |       |       |      |
| Pittsburgh J3               | 22.00    | 6.25  | 26.00   | 12.25 | 28.00 | 15.75 | 28.50     | 14.50 | 29.00     | 15.50 | 29.50 | 16.00 | 30.00     | 14.75 | 8.00     | +0.00 | 13.00     | +0.75 | 15.50 | +0.25 | 20.50     | 6.75  |       |      |
| Alton, Ill. L1              | 20.0     | 6.25  | 24.00   | 10.25 | 28.00 | 13.75 | 28.50     | 12.50 | 27.00     | 13.50 | 27.50 | 14.00 | 28.00     | 12.75 |          |       |           |       |       |       |           |       |       |      |
| Sharon M3                   | 22.0     | 6.25  | 26.00   | 12.25 | 28.00 | 15.75 | 28.50     | 14.50 | 29.00     | 15.50 | 29.50 | 16.00 | 30.00     | 14.75 |          |       |           |       |       |       |           |       |       |      |
| Pittsburgh N1               | 22.0     | 6.25  | 26.00   | 12.25 | 28.00 | 15.75 | 28.50     | 14.50 | 29.00     | 15.50 | 29.50 | 16.00 | 30.00     | 14.75 | 8.00     | +0.00 | 13.00     | +0.75 | 15.50 | +0.25 | 20.50     | 6.75  |       |      |
| Wheeling W5                 | 22.0     | 6.25  | 26.00   | 12.25 | 28.00 | 15.75 | 28.50     | 14.50 | 29.00     | 15.50 | 29.50 | 16.00 | 30.00     | 14.75 |          |       |           |       |       |       |           |       |       |      |
| Wheatland W4                | 22.0     | 6.25  | 26.00   | 12.25 | 28.00 | 15.75 | 28.50     | 14.50 | 29.00     | 15.50 | 29.50 | 16.00 | 30.00     | 14.75 |          |       |           |       |       |       |           |       |       |      |
| Youngstown Y1               | 22.0     | 6.25  | 26.00   | 12.25 | 28.00 | 15.75 | 28.50     | 14.50 | 29.00     | 15.50 | 29.50 | 16.00 | 30.00     | 14.75 | 8.00     | +0.00 | 13.00     | +0.75 | 15.50 | +0.25 | 20.50     | 6.75  |       |      |
| Indiana Harbor Y1           | 21.0     | 7.25  | 25.00   | 11.25 | 27.00 | 14.75 | 27.50     | 13.50 | 28.00     | 14.50 | 28.50 | 15.00 | 29.00     | 13.75 |          |       |           |       |       |       |           |       |       |      |
| Lorain N2                   | 22.0     | 6.25  | 26.00   | 12.25 | 28.00 | 15.75 | 28.50     | 14.50 | 29.00     | 15.50 | 29.50 | 16.00 | 30.00     | 14.75 | 8.00     | +0.00 | 13.00     | +0.75 | 15.50 | +0.25 | 20.50     | 6.75  |       |      |

Threads only, butt weld and seamless 2 1/2" & higher discount. Plain ends, butt weld and seamless, 3-in. and under, 4 1/2" & higher discount. Butt weld jobbers discount, 5 pt.  
Galvanized discounts based on zinc price range of over 94 to 114 per lb. East St. Louis. For each 24 change in zinc, discounts vary as follows: 1/2, 3/4 and 1-in., 2 pt.; 1 1/4, 1 1/2 and 2 in., 1 1/2 pt.; 2 1/2 and 3-in., 1 pt. n.g. zinc price range of over 114 to 124 would lower discounts; zinc price in range over 74 to 94 would increase discounts. East St. Louis zinc price now 12.50¢ per lb.



# Steel Prices (Effective Aug. 30, 1955)

To identify producers, see Key on preceding page.

## RAILS, TRACK SUPPLIES

| F.o.b. Mill<br>Cents Per Lb. | No. 1 Std.<br>Rail | Light Rail | Joint Bar | Track Spikes | Steel Spikes | Tie Plates | Track Bolts<br>Treated |
|------------------------------|--------------------|------------|-----------|--------------|--------------|------------|------------------------|
| Bessemer U.I.                | 4.725              | 5.00       | 5.025     |              |              |            |                        |
| Se. Chicago R3               |                    |            |           | 7.90         |              |            |                        |
| Emley T3                     | 4.725              | 5.00       |           |              |              |            |                        |
| Fairfield T3                 |                    | 5.00       |           | 7.90         |              |            |                        |
| Gary U.I.                    | 4.725              | 5.00       |           |              | 5.025        |            |                        |
| Ind. Harbor J3               | 4.725              |            | 5.025     | 7.90         | 5.025        |            |                        |
| Johnstown B3                 |                    | 5.00       |           |              |              |            |                        |
| Joliet U.I.                  |                    | 5.00       | 5.025     |              |              |            |                        |
| Kansas City S2               |                    |            |           | 7.90         |              |            |                        |
| Lackawanna B3                | 4.725              | 5.05       | 5.025     |              | 5.025        |            |                        |
| Minneapolis C6               | 4.725              | 5.15       | 5.025     | 7.90         | 5.025        | 12.40      |                        |
| Pittsburgh O1                |                    |            |           |              |              | 12.40      |                        |
| Pittsburgh P3                |                    |            |           |              |              | 12.40      |                        |
| Pittsburgh J3                |                    |            |           | 7.90         |              |            |                        |
| Seattle B3                   |                    |            |           | 0.40         | 5.775        | 12.90      |                        |
| Steelton B3                  | 4.725              |            | 5.025     |              |              |            |                        |
| Struthers Y1                 |                    |            |           | 7.90         |              |            |                        |
| Torrance C7                  |                    |            |           |              | 5.775        |            |                        |
| Williamport S3               |                    | 0.50       |           |              |              |            |                        |
| Youngstown R3                |                    |            |           | 7.90         |              |            |                        |

## ELECTRICAL SHEETS

| F.o.b. Mill<br>Cents Per Lb. | 22-Gage<br>(Cut Lengths)* | Cold-Reduced<br>(Coiled or Cut Length) |                 |
|------------------------------|---------------------------|--|-----------------|
|                              |                           | Semi-Processed                         | Fully Processed |
| Field                        | 8.40                      | 8.60                                   |                 |
| Armature                     | 9.35                      | 9.60                                   | 10.10           |
| Elect.                       | 9.95                      | 10.20                                  | 10.70           |
| Mech.                        | 10.55                     | 11.20                                  | 11.70           |
| Dynamos                      | 11.85                     | 12.10                                  | 12.60           |
| Trans. 72                    | 12.80                     | 13.05                                  | 13.55           |
| Trans. 65                    | 13.35                     | Grain Oriented                         |                 |
| Trans. 50                    | 13.85                     | Trans. 80                              | 17.45           |
| Trans. 32                    | 14.85                     | Trans. 73                              | 17.95           |

Producing plants: Beech Bottom (W3); Brackneridge (A3); Granite City (G2); Indiana Harbor (I3); Mansfield (E2); Newport, Ky. (N3); Niles, O. (N3); Vandergrift (U1); Warren, O. (R3); Zanesville (A7).  
\* Cuts 75¢ higher

## MERCHANT WIRE PRODUCTS

| F.o.b. Mill         | Standard & Coated Nails |     | Wire Fence 8-15 1/2 ft. |     | Single Loop Bolt Wire |     | Galv. Barbed and Twisted Barb Wire |       | Mesh Wire As'd |     | Mesh Wire Galv. |     |
|---------------------|-------------------------|-----|-------------------------|-----|-----------------------|-----|------------------------------------|-------|----------------|-----|-----------------|-----|
|                     | Cal                     | Col | Cal                     | Col | Cal                   | Col | Cal                                | Col   | Cal            | Col | Cal             | Col |
| Alabama City R3     | 152                     | 162 |                         |     | 173                   | 175 | 7.40                               | 7.00  |                |     |                 |     |
| Alliquippa, Pa. J3  | 152                     | 162 |                         |     |                       |     | 7.40                               | 7.00  |                |     |                 |     |
| Atlanta A3          | 154                     | 167 |                         |     | 175                   | 180 | 7.50                               | 8.025 |                |     |                 |     |
| Bartonsville K2*    | 154                     | 168 |                         |     | 175                   | 181 | 7.50                               | 8.075 |                |     |                 |     |
| Buffalo W6          |                         |     |                         |     |                       |     | 7.40                               | 7.00  |                |     |                 |     |
| Chicago, Ill. N4*   | 152                     | 166 |                         |     | 173                   | 179 | 7.40                               | 7.975 |                |     |                 |     |
| Cleveland A3        | 152                     | 162 |                         |     |                       |     | 7.40                               | 7.00  |                |     |                 |     |
| Crawfordsville M4*  | 154                     | 167 |                         |     | 175                   | 175 | 7.50                               | 8.05  |                |     |                 |     |
| Decatur, Pa. A3     | 152                     | 162 |                         |     | 173                   | 175 | 7.40                               | 7.00  |                |     |                 |     |
| Duluth A3           | 152                     | 162 |                         |     | 173                   | 175 | 7.40                               | 7.00  |                |     |                 |     |
| Fairfield, Ala. T2  | 152                     | 162 |                         |     | 173                   | 175 | 7.40                               | 7.00  |                |     |                 |     |
| Galveston D4        | 157                     |     |                         |     |                       |     | 8.35                               | 8.925 |                |     |                 |     |
| Houston S2          | 147                     | 170 |                         |     | 180                   | 180 | 7.65                               | 8.05  |                |     |                 |     |
| Johnstown, Pa. B3*  | 152                     | 166 |                         |     | 173                   | 175 | 7.40                               | 7.00  |                |     |                 |     |
| Joliet, Ill. A3     | 152                     | 162 |                         |     | 173                   | 175 | 7.40                               | 7.00  |                |     |                 |     |
| Kokomo, Ind. C9     | 154                     | 164 |                         |     | 175                   | 177 | 7.50                               | 7.90  |                |     |                 |     |
| Los Angeles B2*     |                         |     |                         |     |                       |     | 8.35                               | 8.925 |                |     |                 |     |
| Kansas City S2      | 167                     | 174 |                         |     | 178                   | 180 | 7.65                               | 8.05  |                |     |                 |     |
| Minneapolis C6      | 157                     | 167 | 162                     | 170 | 180                   | 180 | 7.65                               | 8.05  |                |     |                 |     |
| Monessen P6         | 152                     | 162 |                         |     |                       |     | 7.40                               | 7.00  |                |     |                 |     |
| Moline, Ill. R3     | 162                     | 162 |                         |     | 195                   | 195 | 8.35                               | 8.75  |                |     |                 |     |
| Pittsburgh, Cal. C7 | 171                     | 185 |                         |     |                       |     | 7.40                               |       |                |     |                 |     |
| Portsmouth P7       |                         |     |                         |     |                       |     | 7.40                               |       |                |     |                 |     |
| Rankin, Pa. A3      | 152                     | 162 |                         |     | 173                   | 175 | 7.40                               | 7.00  |                |     |                 |     |
| Se. Chicago R3      | 152                     | 162 | 157                     | 173 | 175                   | 175 | 7.40                               | 7.00  |                |     |                 |     |
| S. San Francisco C6 |                         |     |                         |     | 187                   | 195 | 8.35                               | 8.75  |                |     |                 |     |
| Sparrows Pt. B3*    | 154                     |     |                         |     | 175                   | 181 | 7.50                               | 8.075 |                |     |                 |     |
| Struthers, O. Y1    |                         |     |                         |     |                       |     | 7.40                               | 7.00  |                |     |                 |     |
| Warren, O. R3       | 158                     |     |                         |     |                       |     | 7.70                               |       |                |     |                 |     |
| Williamport, Pa. S3 |                         |     | 160                     |     |                       |     |                                    |       |                |     |                 |     |

\* Galvanized products computed with zinc at 12 1/2¢ per lb. where indicated. Zinc at 5¢ per lb. for others.

## WAREHOUSES

| City           | City Delivery Charge | Base price, L.o.b., dollars per 100 lb. |             |            |             |                     |            |            |               |            |               |             |             |
|----------------|----------------------|---|-------------|------------|-------------|---------------------|------------|------------|---------------|------------|---------------|-------------|-------------|
|                |                      | Sheets                                  |             | Strip      |             | Plates              |            | Shapes     |               | Bars       |               | Alloy Bars  |             |
|                |                      | Hot-Rolled                              | Cold-Rolled | Hot-Rolled | Cold-Rolled | Standard Structural | Hot-Rolled | Hot-Rolled | Cold-Finished | Hot-Rolled | Cold-Finished | Hot-Rolled  | Cold-Drawn  |
| Baltimore      | 8.10                 | 7.03                                    | 8.35        | 9.10       | 7.05        |                     | 7.21       | 7.93       | 7.61          | 8.62       | 14.38         | 13.44-13.96 | 16.38-16.49 |
| Birmingham     | 15                   | 6.90                                    | 7.90        | 8.80       | 7.05        |                     | 6.99       | 7.28       | 7.65          | 9.35       |               |             |             |
| Boston         | 10                   | 7.70                                    | 8.81        | 10.27      | 7.94-7.96   | 10.50               | 7.80       | 8.13       | 7.83          | 9.53       | 13.65-12.80   | 13.40-13.45 | 16.65-16.50 |
| Buffalo        | 30                   | 6.00                                    | 7.00        | 9.70-8.05  | 7.15-9.77   |                     | 7.15       | 7.40       | 7.10          | 7.90       |               | 13.10       | 16.15       |
| Chicago        | 35                   | 6.00                                    | 7.93        | 8.90       | 7.90        |                     | 6.99       | 7.28       | 7.08          | 7.75       | 13.20         | 12.85       | 16.95-15.90 |
| Cincinnati     | 25                   | 6.92                                    | 7.92        | 8.90       | 7.90        |                     | 7.28       | 7.75       | 7.32          | 8.05       | 13.44         | 13.00       | 16.29-16.14 |
| Cleveland      | 30                   | 6.00                                    | 7.93        | 8.85       | 7.15        |                     | 7.15       | 7.61       | 7.14          | 7.85       |               | 12.91       | 15.94       |
| Denver         |                      | 6.00                                    | 10.00       | 11.22      | 8.90        |                     | 8.00       | 8.75       | 8.90          | 9.82       |               |             | 17.97       |
| Detroit        | 25                   | 6.99                                    | 8.12        | 8.78       | 7.34-8.15   |                     | 7.27       | 7.75       | 7.34          | 8.04       | 13.40         | 13.05       | 16.25-16.10 |
| Houston        |                      | 7.05                                    | 8.75        | 10.40      | 8.15        |                     | 7.00       | 8.20       | 8.25          | 9.85-9.95  |               | 14.00       | 17.05       |
| Kansas City    | 20                   | 7.47                                    | 8.00        | 9.17       | 7.73        |                     | 7.68       | 7.95       | 7.75          | 8.52       |               | 13.52       |             |
| Los Angeles    | 10                   | 6.05                                    | 10.00       | 11.00      | 8.25        |                     | 6.05       | 8.30       | 8.05          | 11.25      |               | 14.25       | 17.05       |
| Memphis        | 10                   | 7.12                                    | 8.25        |            | 7.30        |                     | 7.31       | 7.60       | 7.40          | 9.15       |               |             |             |
| Milwaukee      | 25                   | 6.80                                    | 8.02        | 8.89       | 7.15        |                     | 7.00       | 7.45       | 7.17          | 7.94       |               | 12.94       | 15.99       |
| New Orleans    | 15                   | 7.35                                    | 8.50        |            | 7.60        |                     | 7.55       | 7.85       | 7.65          | 9.65       |               |             |             |
| New York       | 10                   | 7.44                                    | 8.00        | 9.44       | 8.07        | 9.95                | 7.78       | 7.80       | 7.84          | 9.48       | 13.63         | 13.28       | 16.40-16.33 |
| Norfolk        | 20                   | 7.25                                    |             |            | 7.65        |                     | 7.45       | 7.95       | 7.65          | 9.00       |               |             |             |
| Philadelphia   | 10                   | 7.14                                    | 8.42        | 9.35       | 7.67        |                     | 7.37       | 7.74       | 7.64          | 8.45       | 13.51         | 13.16       | 16.34-16.21 |
| Pittsburgh     | 25                   | 6.00                                    | 7.93        | 9.20       | 7.15        | 9.00                | 6.99       | 7.28       | 7.08          | 7.85       | 13.20         | 12.85       | 16.05-15.90 |
| Portland       | 10                   | 7.00                                    | 8.00        | 10.05      | 8.00        |                     | 7.75       | 7.85-8.15  | 7.95          | 11.00      |               | 15.00       | 17.50       |
| Salt Lake City | 20                   |   | 10.00       |            | 9.35        |                     |            | 9.20       | 9.15          |            |               |             |             |
| San Francisco  | 10                   | 8.10                                    | 9.05        | 10.15      | 8.35        |                     | 8.05       | 8.25       | 8.05          | 11.30*     |               | 14.25       | 17.85       |
| Seattle        | 30                   | 8.35                                    | 10.40       | 10.90      | 8.65        |                     | 8.20       | 8.30       | 8.35          | 11.70      |               | 14.60       | 17.65       |
| St. Louis      | 25                   | 7.00                                    | 8.23        | 9.10       | 7.35        | 11.35               | 7.35       | 7.65       | 7.37          | 8.14       | 13.49         | 13.14       | 16.35-16.19 |
| St. Paul       | 25                   | 7.40                                    | 8.50        | 9.16       | 7.72        |                     | 7.65       | 7.94       | 7.74          | 8.51       |               | 13.51       | 16.56       |

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 999 lb. All others: 2000 to 999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may not be combined with each other or with galvanized sheets for quantity.  
Exceptions: (\*) 1500 to 9999 lb. (\*) 1000 lb or over. (\*) 8.25 delivery. (\*) 1000 to 1999 lb. 8.25 delivery.  
\* Plus analysis charge.

## C-R SPRING STEEL

| Cents Per Lb<br>F.o.b. Mill | CARBON CONTENT |           |           |           |           |
|-----------------------------|----------------|-----------|-----------|-----------|-----------|
|                             | 0.25-0.40      | 0.41-0.60 | 0.61-0.80 | 0.81-1.05 | 1.06-1.35 |
| Buffalo, N. Y. R7           | 7.00           | 8.95      | 10.50     | 12.65     | 15.35     |
| Carnegie, Pa. S9            |                | 8.95      | 10.50     | 12.65     | 15.35     |
| Cleveland A3                | 7.00           | 8.95      | 10.50     | 12.65     | 15.35     |
| Detroit D1                  | 7.10           | 9.05      | 10.60     | 12.75     | 15.35     |
| Detroit D2                  | 7.10           | 9.05      | 10.60     |           |           |
| Harrison, N. J. C11         |                | 10.80     | 12.95     | 15.65     |           |
| Indianapolis C5             | 7.15           | 9.10      | 10.50     | 12.65     | 15.35     |
| New Castle, Pa. B4          | 7.00           | 8.95      | 10.50     | 12.65     |           |
| New Haven, Conn. D1         | 7.45           | 9.25      | 10.80     | 12.95     |           |
| Pawtucket, R. I. N7         | 7.55           | 9.25      | 10.80     | 12.95     | 15.65     |
| Pittsburgh S7               | 7.00           | 8.95      | 10.50     | 12.65     | 15.35     |
| Riverdale, Ill. A1          | 7.10           | 8.95      | 10.50     | 12.65     | 15.35     |
| Sharon, Pa. S1              | 7.00           | 8.95      | 10.50     | 12.65     | 15.35     |
| Trenton R4                  |                |           |           |           |           |
| Wallingford W1              | 7.45           | 9.25      | 10.80     | 12.95     | 15.65     |
| Warren, Ohio T4             | 7.00           | 8.95      | 10.50     | 12.65     | 15.35     |
| Watson, W. Va. W3           | 7.10           | 8.95      | 10.50     |           |           |
| Worcester, Mass. A5         | 7.85           | 9.25      | 10.80     | 12.95     | 15.65     |
| Youngstown C5               | 7.00           | 8.95      | 10.50     | 12.65     | 15.35     |

## BOILER TUBES

| \$ per 100 ft. cut and<br>ends, cut 10 to 24 ft.<br>F.o.b. Mill | Size   |          | Seamless |       | Elec. Weld |      |
|---|--------|----------|----------|-------|------------|------|
|   | OD-In. | B.W. Ga. | H.R.     | C.D.  | H.R.       | C.D. |
| Behck & Wilson  | 2      | 13       | 30.87    | 36.51 | 29.94      |      |
|   | 2 1/2  | 12       | 41.57    | 49.16 | 40.31      |      |
|   | 3      | 12       | 47.99    | 56.76 | 46.54      |      |
|   | 3 1/2  | 11       | 56.03    | 66.27 | 54.34      |      |
| National Tube   | 4      | 10       | 74.41    | 88.00 | 72.16      |      |
|   | 2      | 13       | 30.87    | 36.51 | 29.94      |      |
|   | 2 1/2  | 12       | 41.57    | 49.16 | 40.31      |      |
|   | 3      | 12       | 47.99    | 56.76 | 46.54      |      |
| Pittsburgh Steel  | 3 1/2  | 11       | 56.03    | 66.27 | 54.34      |      |
|   | 4      | 10       | 74.41    | 88.00 | 72.16      |      |
|   | 2      | 13       | 30.87    | 36.51 | 29.94      |      |
|   | 2 1/2  | 12       | 41.57    | 49.16 | 40.31      |      |



# Miscellaneous Prices

(Effective Aug. 30, 1955)

## TOOL STEEL

| F.o.b. mill   |    |     |    |    |        |
|---|----|-----|----|----|--------|
| W   | Cr | V   | Mo | Co | per lb |
| 18  | 4  | 1   | —  | —  | \$1.40 |
| 18  | 4  | 1   | —  | 5  | 2.305  |
| 18  | 4  | 2   | —  | —  | 1.765  |
| 1.5   | 4  | 1.5 | 8  | —  | .96    |
| 6   | 4  | 3   | 8  | —  | 1.35   |
| 6   | 4  | 3   | 5  | —  | 1.105  |
| High-carbon chromium .....  |    |     |    |    |        |
| Oil hardened manganese .....  |    |     |    |    |        |
| Special carbon .....  |    |     |    |    |        |
| Extra carbon .....  |    |     |    |    |        |
| Regular carbon .....  |    |     |    |    |        |
| Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher. |    |     |    |    |        |

## CLAD STEEL

Base prices, cents per lb, f.o.b.

| Cladding      | Plate (A3, J2, L4) |        |        | Sheet (J2) |
|---------------|--------------------|--------|--------|------------|
|               | 10 pct             | 15 pct | 20 pct |            |
| 304.....      | 30.30              | 33.15  | 36.05  | 32.50      |
| 316.....      | 35.50              | 38.45  | 41.40  | 47.90      |
| 321.....      | 32.00              | 34.85  | 37.75  | 37.25      |
| 347.....      | 34.40              | 37.90  | 41.40  | 48.25      |
| 405.....      | 25.80              | 29.60  | 33.35  | .....      |
| 410, 430..... | 25.30              | 29.10  | 32.85  | .....      |

## LAKE SUPERIOR ORES

15.50% Fe; natural content, delivered lower Lake ports. Prices effective for 1955 season.

|                              | Gross Ton |
|------------------------------|-----------|
| Openhearth lump .....        | \$11.35   |
| Old range, bessemer .....    | 10.40     |
| Old range, nonbessemer ..... | 10.25     |
| Mesabi, bessemer .....       | 10.25     |
| Mesabi, nonbessemer .....    | 10.10     |
| High phosphorus .....        | 10.00     |

## COKE

|                                      | Net-Ton            |
|--------------------------------------|--------------------|
| Furnace, beehive (f.o.b. oven) ..... | \$13.00 to \$13.50 |
| Foundry, beehive (f.o.b. oven) ..... | .....              |
| Foundry, oven coke .....             | \$16.00 to \$16.50 |
| Buffalo, del'd .....                 | \$28.05            |
| Chicago, f.o.b. .....                | 24.30              |
| Detroit, f.o.b. .....                | 26.25              |
| New England, del'd .....             | 26.05              |
| Seaboard, N. J., f.o.b. .....        | 24.50              |
| Philadelphia, f.o.b. .....           | 24.00              |
| Swedeland, Pa., f.o.b. .....         | 24.00              |
| Plainsville, Ohio, f.o.b. .....      | 25.50              |
| Erie, Pa., f.o.b. .....              | 25.00              |
| Cleveland, del'd .....               | 27.45              |
| Cincinnati, del'd .....              | 26.55              |
| St. Paul, f.o.b. .....               | 27.75              |
| St. Louis, f.o.b. .....              | 26.00              |
| Birmingham, f.o.b. .....             | 32.65              |
| Lone Star, Tex., f.o.b. .....        | 18.50              |

## ELECTRODES

Cents per lb, f.o.b. plant, threaded, with nipples, unboxed.

| GRAPHITE    |              |       | CARBON*     |              |       |
|-------------|--------------|-------|-------------|--------------|-------|
| Diam. (In.) | Length (In.) | Price | Diam. (In.) | Length (In.) | Price |
| 24          | 84           | 23.00 | 40          | 100, 110     | 9.90  |
| 20          | 72           | 22.25 | 35          | 110          | 9.90  |
| 16 to 18    | 72           | 22.50 | 30          | 110          | 10.05 |
| 14          | 72           | 23.00 | 24          | 72 to 84     | 10.30 |
| 12          | 72           | 23.50 | 20          | 90           | 10.10 |
| 10          | 60           | 24.25 | 17          | 72           | 10.35 |
| 7           | 60           | 24.50 | 14          | 72           | 10.85 |
| 6           | 60           | 27.25 | 12          | 60           | 11.75 |
| 4           | 40           | 30.25 | 10          | 60           | 11.90 |
| 3           | 40           | 32.00 | 8           | 60           | 12.10 |
| 2 1/2       | 30           | 33.75 | .....       | .....        | ..... |
| 2           | 24           | 32.50 | .....       | .....        | ..... |

\* Prices shown cover carbon nipples.

## BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

### Machine and Carriage Bolts

|  | Discount |
|--|----------|
| Less Case C.   |          |
| 1/2 in. & smaller x 4 in. & shorter .....                              | +5 17    |
| 1/2 in. & smaller x 6 in. & shorter .....                              | +13 11   |
| 9/16 in. & 5/8 in. x 6 in. & shorter .....                             | +13 10   |
| 3/4 in. & larger x 6 in. & shorter .....                               | +16 7    |
| All diam. longer than 6 in. .....                                      | +25 net  |
| Roll thread carriage bolts 1/2 in. & smaller x 4 in. and shorter ..... | +10 12   |
| Lag, all diam. x 6 in. & shorter .....                                 | +3 18    |
| Lag, all diam. longer than 6 in. .....                                 | +11 12   |
| Flow bolts .....   | 18 18    |

### Nuts, H.P., C.P., reg. & hvy.

|                               | Base<br>Discount | Discount,<br>Case<br>or Keg |
|-------------------------------|------------------|-----------------------------|
| 3/4" or smaller .....         | 55               | 64                          |
| 3/4" to 1 1/4" inclusive...   | 55               | 63                          |
| 1 1/4" to 1 1/2" inclusive .. | 57               | 65                          |
| 1 1/2" and larger .....       | 61               | 61                          |

### C.P. Hex. regular & hvy.

|                        |       |
|------------------------|-------|
| 3/4" and smaller ..... | 55 64 |
| 3/4" and larger .....  | 61 61 |

### Hot Galv Nuts (all types)

|                                |       |
|--------------------------------|-------|
| 3/4" or smaller .....          | 55 50 |
| 3/4" to 1 1/4" inclusive ..... | 55 49 |

### Finished, Semi-finished, Slotted or Castellated Nuts

|                        |       |
|------------------------|-------|
| 3/4" and smaller ..... | 55 64 |
| 3/4" and larger .....  | 61 63 |

### Rivets

|                            | Base per 100 lb | Pot Off List |
|----------------------------|-----------------|--------------|
| 1/2 in. and larger .....   | \$9.95          | 83           |
| 7/16 in. and smaller ..... | .....           | 83           |

### Cap Screws

|   | Discount | H.C. Heat |
|---|----------|-----------|
|   | Bright   | Treated   |
| New std. hex head, packaged                 |          |           |
| 1/2" thru 1 1/2" diam. x 6" and shorter     | 34       | 20        |
| 9/16 and 5/8 x 6" and smaller and shorter   | 31       | 16        |
| 3/4, 1" x 6" and shorter                    | 8        | +11       |
| New std. hex head, bulk                     |          |           |
| 1/2" thru 1 1/2" diam. x 6" and shorter     | 49       | 41        |
| 9/16 and 5/8 diam. x 6" and shorter         | 48       | 39        |
| 3/4, 1" x 6" and shorter                    | 31       | 20        |
| *Minimum quantity per item:                 |          |           |
| 15,000 pieces 1/4", 5/16", 3/8" diam.       |          |           |
| 5,000 pieces 7/16", 1/2", 9/16", 5/8" diam. |          |           |
| 2,000 pieces 3/4", 1", 1 1/4" diam.         |          |           |

### Machine Screws & Stove Bolts

|   | Discount       | Mach. Screws | Stove Bolts |
|---|----------------|--------------|-------------|
| Packaged, package list                        | 27             | 27           | 28          |
| Bulk, bulk list                               | .....          | .....        | .....       |
| 1/2-in. diam. & under 5/16-in. diam. & larger | .....          | .....        | .....       |
| All diam. over 3 in. long                     | .....          | .....        | .....       |
| Quantity                                      | 25,000-200,000 | 20           | 61          |
| Quantity                                      | 15,000-100,000 | 20           | 61          |
| Quantity                                      | 5,000-100,000  | ..           | 61          |

### Machine Screw & Stove Bolt Nuts

|                         | Discount       | Hex   | Square |
|-------------------------|----------------|-------|--------|
| Packaged, package list  | 24             | 24    | 27     |
| Bulk, bulk list         | .....          | ..... | .....  |
| 1/2-in. diam. & smaller | .....          | 18    | 20     |
| Quantity                | 25,000-200,000 | 18    | 20     |

## CAST IRON WATER PIPE INDEX

|                           |       |
|---------------------------|-------|
| Birmingham .....          | 104.3 |
| New York .....            | 116.5 |
| Chicago .....             | 121.0 |
| San Francisco-L. A. ..... | 126.1 |

Class B or heavier, 6 in. or larger, bell and spigot pipe. See page 57 for explanation. Source: U. S. Pipe and Foundry Co.

## REFRACTORIES

### Fire Clay Brick

| Carloads per 1000  |          |
|--|----------|
| First quality, Ill., Ky., Md., Mo., Ohio, Pa. (except Salina, Pa., add \$5.00) ..... | \$132.00 |
| No. 1 Ohio .....   | .....    |
| Sec. quality, Pa., Md., Ky., Mo., Ill. .....   | 114.00   |
| No. 2 Ohio .....   | .....    |
| Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.50) .....               | 18.00    |

### Silica Brick

|   |          |
|---|----------|
| Mt. Union, Pa., Ensley, Ala. ....                                 | \$128.00 |
| Childs, Hays, Pa. ....  | 133.00   |
| Chicago District .....  | 138.00   |
| Western Utah .....  | .....    |
| California .....  | .....    |
| Super Duty .....  | .....    |
| Hays, Pa., Athens, Tex., Windham, Pa. ....                        | 145.00   |
| Curtner, Calif. ....  | 163.00   |
| Silica cement, net ton, bulk, Eastern (except Hays, Pa.) .....    | 21.00    |
| Silica cement, net ton, bulk, Hays, Pa. ....                      | 24.00    |
| Silica cement, net ton, bulk, Chicago District, Ensley, Ala. .... | 22.00    |
| Silica cement, net ton, bulk, Utah and Calif. ....                | .....    |

### Chrome Brick

| Per net ton                                      |         |
|--|---------|
| Standard chemically bonded, Balt. ....           | \$86.00 |
| Standard chemically bonded, Curtner, Calif. .... | 96.35   |
| Burned, Balt. ....                               | 80.00   |

### Magnesite Brick

|                                    |          |
|------------------------------------|----------|
| Standard Baltimore .....           | \$109.00 |
| Chemically bonded, Baltimore ..... | 97.50    |

### Grain Magnesite

| St. %-in. grains                                  |         |
|---|---------|
| Domestic, f.o.b. Baltimore .....                  | .....   |
| In bulk fines removed .....                       | \$64.40 |
| Domestic, f.o.b. Chewah, Wash., Luning, Nev. .... | 40.00   |
| In sacks .....                                    | 46.00   |

### Dead Burned Dolomite

| Per net ton                             |         |
|---|---------|
| F.o.b. bulk, producing points in: ..... | .....   |
| Pa., W. Va., Ohio .....                 | \$15.00 |
| Midwest .....                           | 15.40   |
| Missouri Valley .....                   | 14.00   |

## METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.

|  |                         |
|--|-------------------------|
| Swedish sponge iron e.l.f. ....  | 11.95¢                  |
| New York, ocean bags ...   | 9.5¢                    |
| Canadian sponge iron, ...  | 10.75¢                  |
| Del'd in East, carloads ...  | .....                   |
| Domestic sponge iron, 95+% Fe, carload lots .....                        | 9.5¢                    |
| Electrolytic iron, annealed, imported 99.5+% Fe .....                    | 27.5¢                   |
| domestic 99.5+% Fe .....   | 36.5¢                   |
| Electrolytic iron, unannealed, minus 325 mesh, 99+% Fe .....             | 53.5¢                   |
| Hydrogen reduced iron minus 300 mesh, 95+% Fe, 63.0¢ to 80.0¢ .....      | .....                   |
| Carbonyl iron, size 5 to 10 micron, 99%, 90.5+% Fe, 83.0¢ to 81.4¢ ..... | .....                   |
| Aluminum .....   | 31.5¢                   |
| Brass, 10 ton lots .....   | 29.50¢ to 36.50¢        |
| Copper, electrolytic .....   | 57.75¢                  |
| Copper, reduced .....  | 57.75¢                  |
| Cadmium, 100-199 lb. 95% plus metal value .....                          | .....                   |
| Chromium, electrolytic, 95% min., and quality, del'd ...                 | 83.00                   |
| Lead .....   | 23.50¢                  |
| Manganese .....  | 57.0¢                   |
| Molybdenum, 99% .....  | 82.75                   |
| Nickel, unannealed .....   | 89.50¢                  |
| Nickel, annealed .....   | 98.50¢                  |
| Nickel, spherical, unannealed .....                                      | 93.50¢                  |
| Silicon .....  | 45.50¢                  |
| Solder powder .70¢ to 9.0¢ plus met. value .....                         | .....                   |
| Stainless steel, 202 .....   | 91.0¢                   |
| Stainless steel, 316 .....   | 81.1¢                   |
| Tin .....  | 14.00¢ plus metal value |
| Tungsten, 99% (65 mesh) ..   | 84.00                   |
| Zinc, 10 ton lots .....  | 17.5¢ to 25.0¢          |

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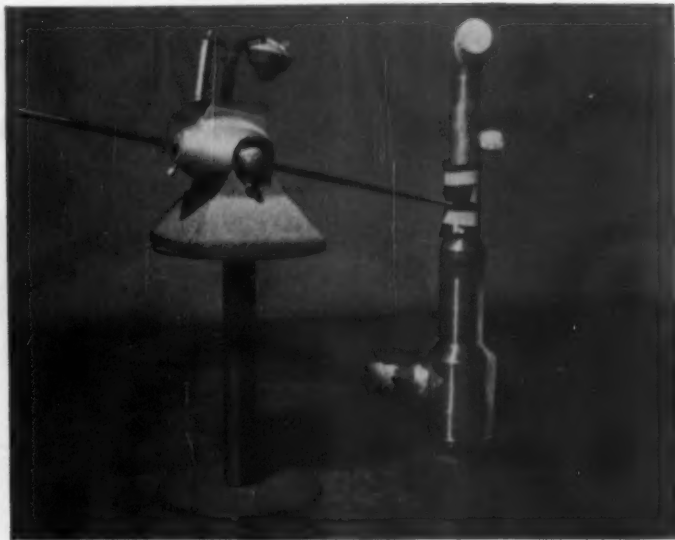
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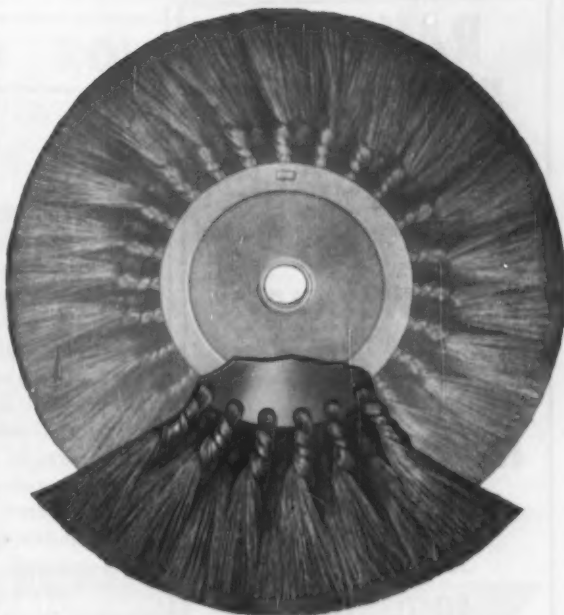
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## THE CLEARING HOUSE

### News of Used and Rebuilt Machinery

**Chicago Shows Strength . . .** Reflecting Chicago area industries generally, used machine tool distributors in the area were reporting an advancing inquiry rate and a generally strong level of business in the small "bread and butter" tool lines.

While heavier equipment continued erratic in behavior, heavy machines generally were continuing to advance in sales volume. A strong influx of out-of-area business, coupled with a high local level has nearly everybody, whether in small shops or large, interested in pricing tools. What's more important, the customers are beginning to buy.

**Slump Hit Some . . .** While rebuilding continued at a strong level through the seasonal July-August period, smaller distributors of used tools felt the usual July slump. It's generally conceded now that where the slump occurred, it was considerably less than last year's mid-summer fall-off.

It's equally common to hear dealers no longer comparing 1955 with 1954. More distributors are beginning to compare 1955 with 1953, which was a fairly high level year in the first half. Even in shops where 1953 was a record selling year, the comment is being made that present levels are little more than 10 pct below that 1953 record peak.

**Inquiries Jump . . .** August this year compared with a year ago is marked not only by a higher business level generally, but a much more rapid increase in the inquiry rate after July. This has thrown heavier pressure on dealers' used machine tool stocks in the Midwest, and stepped up the hunt for late model machines.

The hunt, unlike a year ago, didn't slow a whit during the July slowdown, and is moving at a

faster pace as the inquiry rate from potential customers again steps up. All of which is regarded as pointing to an extremely strong third quarter, with probably record sales levels for that period. The only comparable year, 1953, was marked by very poor selling in the second half as opposed to fairly strong levels in first half. Sheet metal equipment, light stamping equipment, electrical equipment, boring mills, planing machines, lathes, milling machines have been sharing in the advance.

**Suffer Small Setback . . .** Unlike the West Coast, the Midwest suffered no more than a temporary setback on small lathe and milling machine demand. The lag has ended and the strong rate of customer inquiries suggests further gains in the third quarter.

Surface grinders and planers had a rather rocky period in first quarter of this year, but have come back strongly and give every sign of further advances.

Customers for nearly all of this equipment are faced with heavy production schedules. Steel has been a bind, but where sufficient steel has been available, the strong demand level for their own products has encouraged many purchasers of used machine tools to plan a slightly higher buying level for third quarter than had been forecast even in late second quarter.

**Buying Will Last . . .** Heavy purchasing of electrical equipment suggests that the current buying trend will carry well through fourth quarter and into the normal December-January slowdown.

The fairly heavy buying and steady volume in light equipment sales is regarded as further proof that the present strong sales outlook is good for a long run.

# THE CLEARING HOUSE

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10 ton Niles 32" Span 220 Volt D.C.  
10 ton Shaw 72" Span 220 Volt D.C.  
10 ton Northern 75" Span 220 Volt D.C.  
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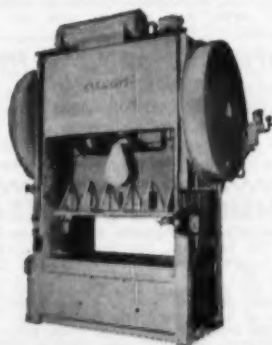
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| 1   | 350     | G.E.    | CD-100-A | 230     | 1150     |
| 1   | 300/250 | W. Dy.  | Rise #22 | 230     | 400/1200 |
| 1   | 180     | MIII    | MPC      | 250     | 420/1200 |
| 1   | 160/90  | G.E.    | MPC      | 250     | 1125/625 |
| 1   | 150     | Whao.   | RE-201   | 230     | 300/800  |
| 2   | 125     | Whao.   | RE-184   | 230     | 575/850  |
| 1   | 125     | Whao.   | RE-190   | 250     | 600      |
| 1   | 125     | G.E.    | MPC      | 230     | 400/600  |
| 4   | 100     | W. Dy.  | RE-36    | 230     | 450/1250 |
| 3   | 50      | Whao.   | RE-121.5 | 230     | 600/2200 |
| 1   | 40      | G.E.    | CD-120   | 230     | 500/1000 |
| 1   | 40      | Rel.    | 651-T    | 230     | 250/1000 |
| 1   | 35      | Whao.   | RE       | 230     | 250/1000 |
| 1   | 32 1/2  | Whao.   | RE-150   | 230     | 400/1200 |
| 1   | 30      | Whao.   | RE-83    | 230     | 1800     |
| 1   | 15      | G.E.    | CD-85    | 230     | 575/2300 |
| 2   | 15      | Whao.   | RE-103   | 230     | 400/1600 |
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| Qs. | KVA  | Make    | Phase | Voltage                 |
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| 3   | 400  | Whao.   | 1     | 22,000-2300/4000        |
| 3   | 333  | G.E.    | 1     | 12,500/11,400-2300/4000 |
| 1   | 300  | G.E.    | 1     | 12,000/10500-240/450    |
| 1   | 300  | Whao.   | 1     | 11,000-160              |
| 2   | 150  | G.E.    | 1     | 2400/4160-240/480       |
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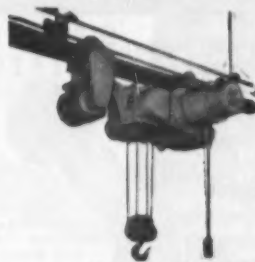
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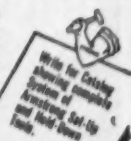


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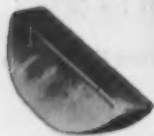
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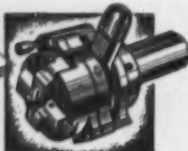
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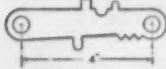
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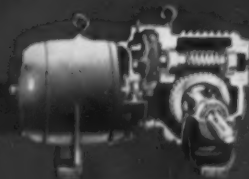
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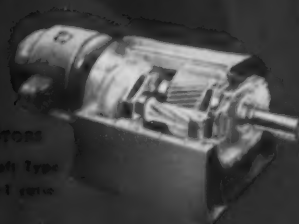
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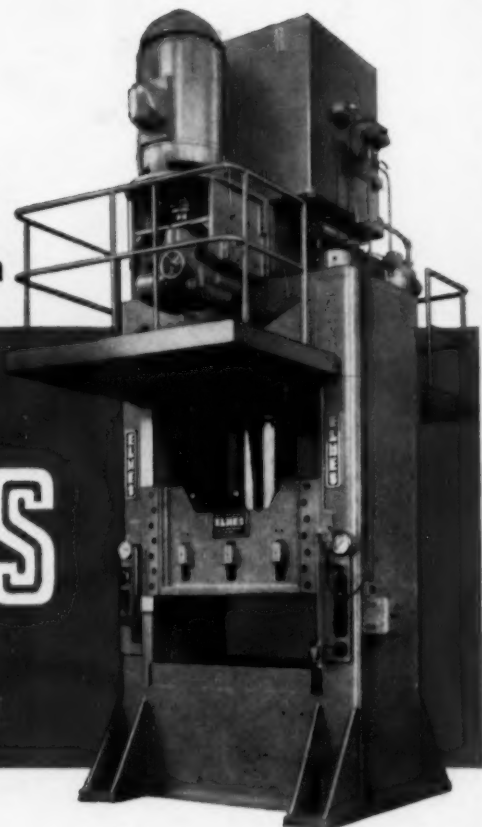
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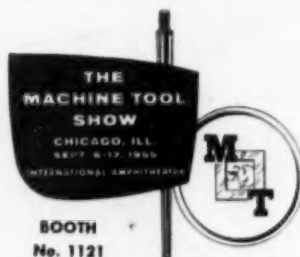
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